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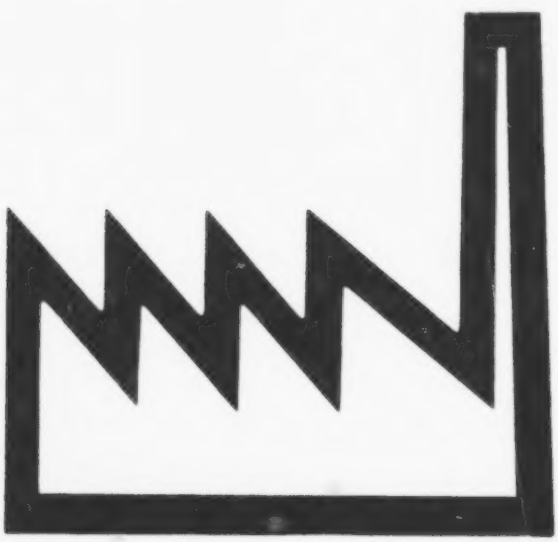
INDUSTRY SERIES

Glass Products

Industries 3211, 3221, 3229, and 3231



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ACKNOWLEDGMENTS

1987
Census of Manufactures

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Issued May 1990

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INTRODUCTION

PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries, and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the

Census of Retail Trade
Census of Wholesale Trade
Census of Service Industries
Census of Transportation
Census of Manufactures
Census of Mineral Industries
Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial

activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures, Current Industrial Reports,* and the *Quarterly Financial Report.* Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics.* More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses.* Contact Customer Services for information on availability.

CENSUS OF MANUFACTURES

General

This report, from the 1987 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as type of organization, distribution of sales by class of customer, concentration ratios and water use in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan statistical areas (MSA's), counties, and places. Selected statistical totals for "all manufacturing" have been shown in the State reports for MSA's with 250 employees or more and for counties and places with 450 employees or more.

The *General Summary* report will contain industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing

The 1987 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial*

Classification (SIC) Manual[1]. This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 56,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1987, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1987 Census of Manufactures universe includes approximately 350,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small Single-Establishment Companies Not Sent a Report Form**

   In the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than five employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials

[1]**Standard Industrial Classification Manual: 1987:** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Stock No. 041-001-00314-2.

were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative-record cases were only given a two- or three-digit SIC group. For the 1987 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments Sent a Report Form**

The 200,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 56,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diver ity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM)**—Approximately 84,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM)**—This group consisted of approximately 60,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested

summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1987 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1987, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/77 and a reduction of three-digit groups from 143 in 1972/77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures).

However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed. However, the suppressed data are included in higher-level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1987 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential

information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census/ASM		
Durables	Kenneth Hansen	(301) 763-7304
Nondurables	Michael Zampogna	(301) 763-2510
Current Industrial Reports		
Durables	Malcolm Bernhardt	(301) 763-2518
Nondurables	Thomas Flood	(301) 763-5911
Import/Export Publications	Foreign Trade Division	(301) 763-5140
Industry Analysis and Forecasts	International Trade Administration	(202) 377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production- worker hours	1a	1b	2	3a	4	5a					
Production- worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digits)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a			3a				5b			
Coverage	1a			3a				5b			

*Number of companies with shipments of more than $100 thousand.

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DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

This report shows 1987 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC code and title	
3211	Flat Glass
3221	Glass Containers
3229	Pressed and Blown Glass, N.E.C.
3231	Products of Purchased Glass

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account when comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-establishment companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other Federal agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions included in the 1987 Standard Industrial Classification (SIC) Manual[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1987 and 1982 censuses is shown in the appendixes. These appendixes present, in tabular form, the linkage from 1987 to 1982.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 3211, FLAT GLASS

This industry is made up of establishments primarily engaged in manufacturing flat glass. This industry also produces laminated glass, but establishments primarily engaged in manufacturing laminated glass from purchased flat glass are classified in industry 3231. Products of this industry also are collected in the Current Industrial Report MQ-32A, Flat Glass.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3211, Flat Glass, had employment of 14.6 thousand. The employment figure was 5 percent below the 15.3 thousand reported in 1982. Compared with 1986, employment decreased 2 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Tennessee, Pennsylvania, Ohio, and Michigan. These same States were the leaders in 1982.

The total value of shipments for establishments classified in this industry was $2.5 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3211 shipped $2.4 billion of flat glass products considered primary to the industry, $76.2 million of secondary products, and had $51.0 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 97 percent (specialization ratio). In 1982, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 99+ percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). The products primary to industry 3211, no matter in what

[1] **Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

industry they were produced, appear in table 6a and aggregate to $2.4 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the flat glass industry amounted to $915.3 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of total value of shipments.

INDUSTRY 3221, GLASS CONTAINERS

This industry is made up of establishments primarily engaged in manufacturing glass containers for commercial packing and bottling, and for home canning. Products of this industry also are collected in the Current Industrial Report M32G, Glass Containers.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3221, Glass Containers, had employment of 41.1 thousand. The employment figure was 30 percent below the 59.0 thousand reported in 1982. Compared with 1986, employment decreased 4 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were California, Pennsylvania, New Jersey, and Illinois. These same States were the leaders in 1982.

The total value of shipments for establishments classified in this industry was $4.8 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3221 shipped $4.7 billion of glass container products considered primary to the industry, $48.2 million of secondary products, and had $19.8 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 99 percent (specialization ratio). In 1982, the specialization ratio also was 99 percent.

Establishments in this industry also accounted for 99+ percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 99 percent. The products primary to industry 3221, no matter in what industry they were produced, appear in table 6a and aggregate to $4.7 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the glass containers industry amounted to $2.0 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 5 percent of total value of shipments.

INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.

This industry is made up of establishments primarily engaged in manufacturing glass and glassware, not elsewhere classified, pressed, blown, or shaped from glass produced in the same establishment. Establishments primarily engaged in manufacturing textile glass fibers also are included in this industry, but establishments primarily engaged in manufacturing glass wool insulation products are classified in industry 3296. Establishments primarily engaged in manufacturing fiber optic cables are classified in industry 3357, and those manufacturing fiber optic medical devices are classified in industry group 384. Establishments primarily engaged in the production of pressed lenses for vehicular lighting, beacons, and lanterns are also included in this industry, but establishments primarily engaged in the production of optical lenses are classified in industry 3827. Establishments primarily engaged in manufacturing glass containers are classified in industry 3221, and those manufacturing complete electric light bulbs are classified in industry 3641. Products of this industry also are collected in the Current Industrial Report MA-32J, Glass Fibers.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3229, Pressed and Blown Glass, N.E.C., had employment of 36.4 thousand. The employment figure was 3 percent below the 37.6 thousand reported in 1982. Compared with 1986, employment increased 4 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Ohio, Pennsylvania, North Carolina, and West Virginia. These same States were the leaders in 1982.

The total value of shipments for establishments classified in this industry was $3.6 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 3229 shipped $3.4 billion of pressed and blown glass, n.e.c., products considered primary to the industry, $51.9 million of secondary products, and had $75.3 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 99 percent (specialization ratio). In 1982, the specialization ratio was 97 percent.

Establishments in this industry also accounted for 97 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). In 1982, the coverage ratio was 77 percent. The products primary to industry 3229, no matter in what industry they were produced, appear in table 6a and aggregate to $3.5 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the pressed and blown glass, n.e.c., industry amounted to $1.2 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 20 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 10 percent of total value of shipments.

INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS

This industry is made up of establishments primarily engaged in manufacturing glass products from purchased glass. Establishments primarily engaged in manufacturing optical lenses, except ophthalmic, are classified in industry 3827, and those manufacturing ophthalmic lenses are classified in industry 3851. Products of this industry also are collected in the Current Industrial Report MA-32J, Glass Fibers.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 3231, Products of Purchased Glass, had employment of 51.1 thousand. The employment figure was 24 percent above the 41.3 thousand reported in 1982. Compared with 1986, employment increased 17 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were California, Pennsylvania, Ohio, and Michigan, accounting for 35 percent of the industry's employment. This represents a shift from 1987 when Pennsylvania, California, New York, and New Jersey accounted for 42 percent of the industry's employment.

The total value of shipments for establishments classified in this industry was $5.4 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 3231 shipped $5.2 billion of products of purchased glass products considered primary to the industry, $62.5 million of secondary products, and had $153.1 million of miscellaneous receipts, resales, and contract work. Thus, the ratio of primary products to the total of both secondary and primary products shipped by establishments in the industry was 99 percent (specialization ratio). In 1982, the specialization ratio was 95 percent.

Establishments in this industry also accounted for 93 percent of products considered primary to the industry no matter where they actually were produced (coverage ratio). The products primary to industry 3231, no matter in what industry they were produced, appear in table 6a and aggregate to $5.6 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the products of purchased glass industry amounted to $2.6 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 10 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 9 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3]		All employees		Production workers			Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments (million dollars)	New capital expenditures[6] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios	
		Total (no.)	With 20 employees or more (no.)	Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)						Specialization[7] (percent)	Coverage[8] (percent)
INDUSTRY 3211, FLAT GLASS															
1987 Census	66	84	38	14.6	506.7	11.8	24.9	397.6	1 618.4	915.3	2 549.3	151.3	263.8	97	99+
1986 ASM	(NA)	(NA)	(NA)	14.9	493.7	12.1	25.4	392.5	1 409.7	957.1	2 397.6	85.7	280.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	15.2	501.4	12.3	26.7	403.2	1 239.9	925.9	2 155.4	260.1	310.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	15.6	477.5	12.7	27.1	382.6	1 119.9	921.2	2 043.3	100.8	294.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	15.7	448.6	12.7	26.5	357.4	1 124.2	837.8	1 930.3	108.4	299.0	(NA)	(NA)
1982 Census	49	69	33	15.3	413.8	12.0	24.6	322.0	846.5	827.0	1 665.5	97.6	287.3	[9]95	(D)
1981 ASM	(NA)	(NA)	(NA)	17.3	416.1	13.8	27.6	323.3	914.8	769.1	1 656.7	104.5	264.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	17.3	383.8	13.8	28.1	298.0	842.3	701.4	1 546.9	271.2	234.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	20.2	414.9	16.8	34.4	335.9	972.2	675.4	1 637.5	151.6	226.5	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	22.6	446.5	19.0	39.8	366.3	1 065.0	710.8	1 777.2	113.1	212.6	(NA)	(NA)
1977 Census	43	62	32	21.9	401.0	18.5	39.9	328.2	931.0	656.0	1 576.6	81.1	211.4	[9]90	(D)
1976 ASM	(NA)	(NA)	(NA)	21.9	352.5	18.4	38.4	286.7	837.5	520.0	1 335.6	39.6	191.8	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	20.6	297.7	16.8	33.5	234.6	653.6	338.1	1 006.3	(S)	171.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	21.5	277.2	17.7	36.1	218.2	601.0	345.2	936.5	(S)	148.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	22.0	276.3	18.4	38.4	222.1	727.8	327.8	1 043.2	172.2	125.4	(NA)	(NA)
1972 Census	11	32	30	20.9	241.9	17.0	37.0	194.2	662.1	281.0	937.1	95.0	100.7	[10]85	(D)
INDUSTRY 3221, GLASS CONTAINERS															
1987 Census	35	106	93	41.1	1 065.2	36.0	70.8	892.4	2 766.2	2 037.9	4 777.9	226.6	737.6	99	99+
1986 ASM	(NA)	(NA)	(NA)	42.8	1 083.4	37.8	75.8	917.5	2 649.5	1 997.3	4 627.4	211.4	714.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	44.1	1 144.4	38.5	76.9	963.9	2 406.4	2 143.2	4 600.3	182.9	664.1	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	48.5	1 191.7	42.3	79.8	989.0	2 246.2	2 187.2	4 478.5	185.3	726.9	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	55.0	1 295.0	48.1	94.3	1 086.7	2 492.5	2 402.9	4 860.2	187.0	830.0	(NA)	(NA)
1982 Census	41	128	113	59.0	1 306.4	51.7	101.0	1 092.3	2 739.1	2 521.8	5 216.8	297.4	799.4	99	99
1981 ASM	(NA)	(NA)	(NA)	61.0	1 259.0	53.4	102.9	1 054.8	2 721.8	2 222.9	4 926.1	266.2	630.2	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	64.5	1 214.8	56.5	110.0	1 019.4	2 526.1	2 009.5	4 493.4	264.9	604.4	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	67.7	1 128.0	59.8	116.2	952.9	2 459.6	1 785.2	4 206.5	283.0	545.2	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	72.8	1 108.2	64.4	126.4	937.8	2 476.6	1 659.7	4 049.2	251.5	503.0	(NA)	(NA)
1977 Census	31	126	124	70.8	975.4	62.5	120.1	823.0	2 138.9	1 495.3	3 664.2	220.9	408.7	99	99
1976 ASM	(NA)	(NA)	(NA)	71.3	897.5	63.1	124.6	758.6	1 968.5	1 352.5	3 299.8	233.8	427.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	70.0	783.6	61.8	116.6	658.5	1 868.5	1 193.0	3 047.0	177.3	390.4	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	67.6	702.6	59.7	116.2	595.9	1 498.5	995.1	2 466.6	125.8	340.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	73.1	701.8	64.5	125.5	590.4	1 487.9	818.1	2 286.8	120.9	303.4	(NA)	(NA)
1972 Census	27	117	115	72.9	659.4	64.5	128.1	554.8	1 399.7	746.9	2 126.5	121.1	271.9	99	99
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.															
1987 Census	363	417	119	36.4	896.5	29.9	58.8	685.7	2 304.5	1 221.2	3 568.0	195.8	600.6	99	97
1986 ASM	(NA)	(NA)	(NA)	35.0	843.6	29.0	56.5	644.5	2 039.4	1 163.8	3 241.9	228.5	616.9	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	36.0	815.0	29.2	55.6	619.8	2 017.1	1 176.5	3 207.7	247.7	637.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	38.2	834.8	31.5	61.3	645.3	2 160.8	1 234.8	3 338.7	181.4	635.0	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	37.4	785.9	29.9	59.4	590.3	2 022.8	1 075.0	3 106.1	173.7	554.8	(NA)	(NA)
1982 Census	278	331	116	37.6	726.0	29.5	56.8	534.4	1 743.1	984.0	2 724.0	233.3	575.0	97	77
1981 ASM	(NA)	(NA)	(NA)	46.4	826.0	37.2	72.7	623.2	2 119.7	1 224.9	3 280.7	183.1	586.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	45.7	736.4	37.1	73.2	559.5	1 852.4	1 075.7	2 900.0	196.9	507.8	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	45.9	694.9	37.8	75.4	538.1	1 711.2	985.3	2 657.3	245.0	459.3	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	46.3	641.8	38.1	75.9	497.5	1 589.8	872.7	2 416.6	169.5	411.1	(NA)	(NA)
1977 Census	325	382	125	46.2	572.8	38.6	74.4	445.9	1 452.8	675.3	2 120.1	143.6	350.7	97	84
1976 ASM	(NA)	(NA)	(NA)	43.6	505.4	36.5	71.9	395.5	1 278.4	577.7	1 854.8	109.6	321.9	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	40.8	435.5	33.9	66.1	336.5	1 064.9	475.2	1 505.6	100.3	309.0	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	51.3	487.7	43.4	83.8	386.3	1 068.0	504.2	1 545.7	137.6	283.6	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	49.4	448.5	42.5	85.4	361.7	1 051.5	405.2	1 429.8	93.7	228.8	(NA)	(NA)
1972 Census	211	252	110	45.9	398.1	39.3	78.6	317.8	941.4	337.2	1 267.3	55.6	187.9	97	83
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS															
1987 Census	1 325	1 429	431	51.1	1 059.9	39.5	79.9	720.0	2 637.0	2 587.0	5 429.1	204.3	660.4	99	93
1986 ASM	(NA)	(NA)	(NA)	43.7	887.0	33.7	66.3	613.4	2 269.9	2 105.4	4 361.9	[10]219.3	612.3	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	42.7	843.6	33.3	66.1	591.0	1 995.1	1 974.0	3 964.3	148.6	569.8	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	43.2	816.9	33.8	66.2	568.0	1 816.0	1 942.7	3 734.3	110.0	552.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	42.8	741.1	33.1	64.0	503.5	1 644.4	1 595.0	3 204.0	72.2	528.7	(NA)	(NA)
1982 Census	1 228	1 337	387	41.3	696.3	31.5	60.8	486.7	1 483.7	1 480.2	2 976.5	119.1	476.1	[9]95	(D)
1981 ASM	(NA)	(NA)	(NA)	40.8	664.3	31.2	59.5	453.7	1 360.8	1 457.4	2 789.8	104.1	444.8	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	42.1	590.6	32.6	60.1	407.5	1 253.2	1 302.6	2 551.2	107.8	396.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	42.7	570.8	34.3	65.9	407.8	1 263.0	1 273.1	2 509.0	88.9	373.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	42.3	540.1	35.6	70.4	385.9	1 249.6	1 195.4	2 404.1	105.8	350.4	(NA)	(NA)
1977 Census	1 000	1 101	325	36.2	429.2	28.8	56.7	305.9	960.2	898.5	1 842.4	73.4	285.6	[9]95	(D)
1976 ASM	(NA)	(NA)	(NA)	34.6	398.2	27.0	51.1	271.8	829.1	835.6	1 651.1	47.3	270.1	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	32.5	341.0	25.2	47.6	234.3	664.9	665.3	1 336.1	49.0	245.9	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	36.4	357.2	29.1	55.9	254.9	747.5	740.9	1 462.7	65.4	277.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	37.1	348.6	29.8	59.5	250.6	742.8	779.4	1 515.1	43.8	232.8	(NA)	(NA)
1972 Census	817	913	284	33.7	286.1	27.0	53.5	211.8	688.9	672.0	1 330.1	34.5	209.6	[10]90	(D)

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the Industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

[5]Detailed data on materials consumed by type are shown in table 7.

[6]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[7]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[8]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

[9]Minimum percentage; exact percentage withheld to avoid disclosing data for individual companies.

[10]Estimates for new captial expenditures have associated standard errors of 15 percent or more and may be of limited reliability. Estimates for other data items are of acceptable reliability.

Table 1b. Selected Operating Ratios for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 3211, FLAT GLASS									
1987 Census	34 714	81	2 117	15.91	36	56	110 867	31	64.76
1986 ASM	33 134	81	2 099	15.45	40	61	94 611	35	55.50
1985 ASM	32 986	81	2 171	15.10	43	66	81 572	40	46.44
1984 ASM	30 608	81	2 134	14.12	45	68	71 788	43	41.32
1983 ASM	29 573	81	2 087	13.49	43	67	71 605	40	42.42
1982 Census	27 045	78	2 050	13.09	50	75	55 327	49	34.41
1981 ASM	24 052	80	2 000	11.71	46	72	52 879	45	33.14
1980 ASM	22 184	80	2 036	10.60	45	70	48 688	46	29.98
1979 ASM	20 539	83	2 048	9.75	41	67	48 129	43	28.26
1978 ASM	19 756	84	2 095	9.20	40	65	47 124	42	26.76
1977 Census	18 310	84	2 157	8.23	42	67	42 511	43	23.33
1976 ASM	16 095	84	2 087	7.47	39	65	38 242	42	21.81
1975 ASM	14 451	82	1 994	7.00	34	63	31 728	46	19.51
1974 ASM	12 893	82	2 040	6.04	37	66	27 953	46	16.65
1973 ASM	12 559	84	2 087	5.78	31	58	33 082	38	18.95
1972 Census	11 574	81	2 176	5.25	30	56	31 679	37	17.89
INDUSTRY 3221, GLASS CONTAINERS									
1987 Census	25 908	88	1 967	12.61	43	65	67 278	39	39.08
1986 ASM	25 313	88	2 005	12.10	43	67	61 904	41	34.95
1985 ASM	25 950	87	1 997	12.53	47	71	54 567	48	31.29
1984 ASM	24 571	87	1 887	12.39	49	75	46 313	53	28.15
1983 ASM	23 545	87	1 960	11.52	49	76	45 318	52	26.43
1982 Census	22 142	88	1 954	10.81	48	73	46 425	48	27.12
1981 ASM	20 639	88	1 927	10.25	45	71	44 620	46	26.45
1980 ASM	18 834	86	1 947	9.27	45	72	39 164	48	22.96
1979 ASM	16 661	86	1 943	8.20	42	69	36 331	46	21.17
1978 ASM	15 222	88	1 963	7.42	41	68	34 016	45	19.59
1977 Census	13 776	88	1 922	6.85	41	67	30 210	46	17.81
1976 ASM	12 587	88	1 975	6.09	41	68	27 889	45	15.96
1975 ASM	11 194	86	1 887	5.65	39	65	26 664	42	16.01
1974 ASM	10 393	88	1 946	5.13	40	69	22 167	47	12.90
1973 ASM	9 600	86	1 946	4.70	36	66	20 354	47	11.86
1972 Census	9 045	88	1 986	4.33	35	66	19 200	47	10.93
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.									
1987 Census	24 623	82	1 967	11.66	34	59	63 296	37	39.22
1986 ASM	24 102	83	1 948	11.41	36	62	58 269	41	36.10
1985 ASM	22 638	81	1 904	11.15	37	62	56 031	40	36.28
1984 ASM	21 853	82	1 946	10.53	37	62	56 585	39	35.25
1983 ASM	21 013	80	1 987	9.94	35	60	54 086	39	34.05
1982 Census	19 308	78	1 925	9.41	36	63	46 359	42	30.69
1981 ASM	17 801	80	1 954	8.57	37	63	45 683	39	29.16
1980 ASM	16 113	81	1 973	7.64	37	62	40 534	40	25.31
1979 ASM	15 139	82	1 995	7.14	37	63	37 281	41	22.69
1978 ASM	13 861	82	1 990	6.56	36	63	34 337	40	20.97
1977 Census	12 398	84	1 927	5.99	32	59	31 446	39	19.53
1976 ASM	11 591	84	1 970	5.50	31	58	29 321	40	17.78
1975 ASM	10 674	83	1 950	5.09	32	60	26 100	41	16.11
1974 ASM	9 506	85	1 931	4.61	33	64	20 819	46	12.74
1973 ASM	9 078	86	2 009	4.24	28	60	21 285	43	12.31
1972 Census	8 673	86	2 000	4.04	27	58	20 510	42	11.98
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS									
1987 Census	20 739	77	2 021	9.02	48	67	55 510	37	35.51
1986 ASM	20 297	77	1 967	9.25	48	69	51 943	39	34.24
1985 ASM	19 756	78	1 985	8.94	50	71	46 724	42	30.18
1984 ASM	18 909	78	1 959	8.58	52	74	42 037	45	27.43
1983 ASM	17 315	77	1 934	7.87	50	73	38 421	45	25.69
1982 Census	16 859	76	1 930	7.68	50	73	35 925	47	24.40
1981 ASM	16 281	76	1 907	7.63	52	76	33 353	49	22.87
1980 ASM	14 028	77	1 844	6.78	51	74	29 767	47	20.85
1979 ASM	13 367	80	1 921	6.19	51	73	29 578	45	19.17
1978 ASM	12 768	84	1 978	5.48	50	72	29 541	43	17.75
1977 Census	11 856	80	1 969	5.40	49	72	26 525	45	16.93
1976 ASM	11 508	78	1 893	5.32	51	75	23 962	48	16.23
1975 ASM	10 492	78	1 889	4.92	50	75	20 458	51	13.97
1974 ASM	9 813	80	1 921	4.56	51	75	20 536	48	13.37
1973 ASM	9 396	80	1 997	4.21	51	74	20 022	47	12.48
1972 Census	8 786	80	1 981	3.96	51	73	19 849	44	12.50

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1987 and 1982

[Excludes data for auxiliaries. States with 150 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1987												1982	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3211, FLAT GLASS														
United States	-	**84**	**38**	**14.6**	**506.7**	**11.8**	**24.9**	**397.6**	**1 618.4**	**915.3**	**2 549.3**	**151.3**	**15.3**	**846.5**
California	-	13	5	1.2	38.2	.9	2.0	28.6	165.5	92.2	258.0	(D)	.9	56.9
Illinois	-	4	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Michigan	-	5	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Missouri	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
North Carolina	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Ohio	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Oklahoma	-	2	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Pennsylvania	-	6	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
South Carolina	-	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Tennessee	-	3	3	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Texas	-	6	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Washington	-	5	3	.2	3.7	.1	.3	2.2	9.3	5.1	13.3	1.2	(NA)	(NA)
West Virginia	-	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
INDUSTRY 3221, GLASS CONTAINERS														
United States	-	**108**	**93**	**41.1**	**1 065.2**	**36.0**	**70.8**	**892.4**	**2 768.2**	**2 037.9**	**4 777.9**	**226.6**	**59.0**	**2 739.1**
Alabama	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Arkansas	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
California	E1	19	17	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	9.1	482.4
Colorado	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Connecticut	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Florida	-	4	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.8	67.8
Georgia	-	3	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Illinois	-	8	8	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	5.0	210.2
Indiana	-	5	5	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Louisiana	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Maryland	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Michigan	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Minnesota	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Mississippi	-	1	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Missouri	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
New Jersey	-	12	9	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
New York	-	5	3	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.5	145.7
North Carolina	-	4	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Ohio	-	2	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Oklahoma	-	6	6	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Oregon	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Pennsylvania	-	9	9	4.5	113.0	4.1	7.5	98.3	280.8	170.4	452.6	16.4	6.1	272.8
South Carolina	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Tennessee	-	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Texas	E4	4	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Virginia	E5	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Washington	-	1	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
West Virginia	-	2	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.7	83.7
Wisconsin	-	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.														
United States	**E1**	**417**	**119**	**36.4**	**896.5**	**29.9**	**58.8**	**685.7**	**2 304.5**	**1 221.2**	**3 568.0**	**195.8**	**37.6**	**1 743.1**
Arkansas	-	7	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
California	E2	73	12	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.9	45.8
Indiana	E9	6	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kentucky	E2	5	4	1.0	26.2	.8	1.4	20.3	80.7	31.1	112.3	(D)	EE	(D)
Louisiana	-	2	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Massachusetts	E2	11	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Missouri	-	3	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
New Jersey	E2	31	8	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
New York	-	32	11	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	57.6
North Carolina	-	12	4	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Ohio	-	33	17	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Oklahoma	-	4	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Pennsylvania	-	29	12	4.7	111.0	3.9	7.5	85.3	294.4	178.1	467.7	28.7	5.7	251.5
Rhode Island	-	2	1	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
South Carolina	-	4	2	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Tennessee	-	5	3	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Texas	-	22	5	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Virginia	-	7	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
West Virginia	E2	22	13	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	4.6	146.9

See footnotes at end of table.

Table 2. **Industry Statistics for Selected States: 1987 and 1982**—Con.

[Excludes data for auxiliaries. States with 150 employees or more are shown. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area		1987											1982	
		All establishments		All employees		Production workers								
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS														
United States	–	**1 429**	**431**	**51.1**	**1059.9**	**39.5**	**79.9**	**720.0**	**2 837.0**	**2 587.0**	**5 429.1**	**204.3**	**41.3**	**1 483.7**
Alabama	–	8	3	.9	21.3	.6	1.2	13.2	53.3	34.3	94.4	(D)	CC	(D)
Arizona	E2	20	7	.4	6.4	.3	.6	4.4	14.2	11.5	25.6	.7	.4	13.2
Arkansas	E1	8	3	.3	3.8	.2	.4	2.8	11.0	15.0	26.2	.3	.3	4.7
California	E1	224	67	5.1	103.4	3.8	7.4	63.8	221.0	204.6	424.3	(D)	4.6	159.1
Colorado	E3	26	4	.2	4.0	.2	.3	2.3	9.0	8.5	17.1	(D)	.3	6.4
Connecticut	E2	24	11	.6	10.0	.4	.9	5.6	26.9	25.3	51.7	1.1	CC	(D)
Florida	E1	77	12	1.4	24.5	1.1	2.4	16.5	55.0	61.0	112.7	2.4	1.4	34.7
Georgia	–	28	12	.9	14.3	.7	1.3	10.6	31.8	46.1	78.4	(D)	CC	(D)
Illinois	E2	65	24	1.8	34.9	1.4	2.6	22.4	74.4	67.5	141.9	8.3	1.8	57.3
Indiana	E1	42	16	2.2	50.6	1.8	3.8	37.1	137.3	122.2	259.1	12.6	1.5	41.5
Iowa	–	15	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	8.7
Kansas	–	11	2	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Kentucky	–	13	7	.9	18.5	.7	1.5	12.1	75.2	31.6	105.2	3.0	(NA)	(NA)
Maryland	E2	16	5	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Massachusetts	–	31	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.4	13.8
Michigan	E1	63	18	3.8	107.9	2.8	6.2	75.2	248.5	204.3	452.1	29.8	2.5	95.4
Minnesota	–	22	5	1.2	25.5	.9	1.9	17.0	81.3	86.0	168.9	(D)	.7	31.5
Mississippi	–	7	4	1.0	15.6	.7	1.6	9.6	37.9	49.3	89.0	.5	.5	15.5
Missouri	E1	23	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.3	9.2
New Hampshire	–	2	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
New Jersey	E1	91	33	2.9	57.8	2.3	4.7	40.6	138.3	96.9	235.5	(D)	3.5	112.9
New York	E1	113	29	3.1	58.4	2.5	4.9	38.1	152.3	128.6	277.1	8.4	4.1	202.3
North Carolina	–	37	16	3.8	69.3	2.8	6.1	42.3	241.8	129.7	378.4	9.9	1.8	60.9
Ohio	–	81	28	4.0	92.3	3.1	6.4	56.6	237.8	226.2	463.2	35.1	2.8	123.8
Oklahoma	E7	11	5	.4	7.2	.3	.7	5.2	11.5	24.0	35.4	.8	.2	4.5
Oregon	–	18	4	.3	4.9	.2	.5	3.2	11.4	7.9	19.1	.6	.2	6.0
Pennsylvania	–	80	31	5.0	123.7	3.8	7.5	58.1	390.6	451.4	849.8	29.0	5.3	208.3
South Carolina	–	14	4	.5	8.8	.4	.8	6.1	20.3	25.4	45.1	.7	AA	(D)
Tennessee	–	28	10	2.1	37.5	1.8	3.6	26.2	85.1	120.2	201.5	(D)	1.0	30.9
Texas	–	62	18	1.8	35.9	1.4	3.0	27.0	102.4	96.8	200.6	8.3	1.4	59.2
Virginia	–	22	9	1.2	17.9	.9	1.7	10.8	54.3	34.4	81.7	1.8	.8	14.4
Washington	–	27	7	.6	12.3	.5	1.0	8.2	33.2	42.0	75.2	2.8	.5	16.8
West Virginia	E2	16	7	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.0	28.4
Wisconsin	E1	33	12	1.0	20.6	.8	1.6	13.5	65.6	89.4	155.2	11.6	.4	14.6

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single-unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1 – 10 to 19 percent; E2 – 20 to 29 percent; E3 – 30 to 39 percent; E4 – 40 to 49 percent; E5 – 50 to 59 percent; E6 – 60 to 69 percent; E7 – 70 to 79 percent; E8 – 80 to 89 percent; E9 – 90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: AA – 150 to 249 employees; BB – 250 to 499 employees; CC – 500 to 999 employees; EE – 1,000 to 2,499 employees; FF – 2,500 employees or more.

Table 3a. **Summary Statistics for the Industry: 1987**

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item		Flat glass (SIC 3211)	Glass containers (SIC 3221)	Pressed and blown glass, n.e.c. (SIC 3229)	Products of purchased glass (SIC 3231)
Companies	number	66	35	363	1 325
All establishments	do.	84	106	417	1 429
With 1 to 19 employees	do.	46	13	298	998
With 20 to 99 employees	do.	15	4	53	315
With 100 employees or more	do.	23	89	66	116
Employment and labor costs:					
Employees	1,000	14.6	41.1	36.4	51.1
Compensation, total	mil dol.	659.9	1 348.5	1 134.6	1 086.4
Annual payroll	do.	506.7	1 065.2	896.5	1 059.9
Fringe benefits	do.	153.1	283.3	238.1	269.5
Social Security and other legally required payments	do.	47.3	121.1	99.8	104.0
Employer payments and other programs	do.	105.7	162.1	138.3	165.5
Production workers:					
Average for year	1,000	11.8	36.0	29.9	39.5
March	do.	11.9	35.4	30.0	38.6
May	do.	11.8	35.9	30.0	38.9
August	do.	11.8	36.5	29.5	39.8
November	do.	11.4	36.0	29.8	40.2
Hours	millions	24.9	70.8	58.8	79.9
January to March	do.	6.4	17.3	14.7	19.4
April to June	do.	6.3	17.9	14.8	19.8
July to September	do.	6.0	17.8	14.4	19.9
October to December	do.	6.2	17.9	14.8	20.5
Wages	mil dol.	397.2	892.4	685.7	720.0

See footnotes at end of table.

Table 3a. Summary Statistics for the Industry: 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flat glass (SIC 3211)	Glass containers (SIC 3221)	Pressed and blown glass, n.e.c. (SIC 3229)	Products of purchased glass (SIC 3231)
Value added by manufacture ..... mil dol..	1 618.4	2 766.2	2 304.5	2 848.6
Cost of materials[1] ..... do..	915.3	2 037.9	1 221.2	2 587.0
Materials, parts, containers, etc., consumed[2] ..... do..	645.8	1 606.9	884.7	2 341.2
Resales ..... do..	47.5	(D)	41.7	95.5
Fuels ..... do..	135.1	239.1	165.1	41.1
Purchased electricity ..... do..	66.1	184.0	120.9	83.2
Contract work ..... do..	20.8	(D)	8.8	26.1
Quantity of electric energy used for heat and power:				
Purchased ..... mil kWh..	1 353.5	3 953.7	2 736.1	1 656.3
Generated less sold ..... do..	(S)	-	(S)	-
Total value of shipments ..... mil dol..	2 549.3	4 777.9	3 568.0	5 429.1
Primary products ..... do..	2 422.1	4 709.9	3 440.8	5 213.5
Secondary products ..... do..	76.2	48.2	51.9	62.5
Miscellaneous receipts, total ..... do..	51.0	19.8	75.3	153.1
Value of resales ..... do..	48.1	(D)	70.6	120.2
Contract receipts ..... do..	(D)	-	(D)	(D)
Other miscellaneous receipts ..... do..	(D)	(D)	(D)	(D)
Inventories by stage of fabrication:				
Beginning of 1987 ..... mil dol..	280.7	706.6	653.0	654.5
Finished goods ..... do..	123.9	575.2	381.6	259.0
Work in process ..... do..	69.5	6.1	79.1	153.0
Materials and supplies ..... do..	87.2	125.3	192.2	242.5
End of 1987 ..... do..	263.8	737.6	600.6	660.4
Finished goods ..... do..	113.3	603.7	341.2	245.8
Work in process ..... do..	64.4	3.9	77.2	161.1
Materials and supplies ..... do..	86.0	130.0	182.2	253.5
Primary product specialization ratio ..... percent..	97	99	99	99
Coverage ratio ..... do..	99+	99+	97	93

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1987

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flat glass (SIC 3211)	Glass containers (SIC 3221)	Pressed and blown glass, n.e.c. (SIC 3229)	Products of purchased glass (SIC 3231)
Gross book value of depreciable assets:				
Total:				
Beginning of year	2 109.4	2 299.0	2 908.1	1 701.4
New capital expenditures[1]	151.3	226.8	195.8	204.3
Used capital expenditures	4.9	3.5	12.7	18.8
Retirements	58.0	95.4	78.6	52.0
End of year	2 207.5	2 433.7	3 038.0	1 872.5
Buildings and other structures:				
Beginning of year	480.4	607.8	694.8	520.6
New capital expenditures	6.0	13.3	25.0	42.8
Used capital expenditures	(D)	(D)	1.2	3.8
Retirements	(D)	(D)	15.8	9.2
End of year	482.2	617.5	705.2	558.1
Machinery and equipment:				
Beginning of year	1 628.9	1 691.1	2 213.3	1 180.8
New capital expenditures[1]	145.2	213.3	170.8	161.4
Used capital expenditures	(D)	(D)	11.5	14.9
Retirements	(D)	(D)	62.8	42.7
End of year	1 725.3	1 816.2	2 332.8	1 314.5
Depreciation charges during 1987:				
Total	155.9	177.4	198.9	138.1
Buildings and other structures	15.8	18.8	39.8	27.1
Machinery and equipment	140.0	158.6	159.0	111.0
Rental payments:				
Total	3.6	38.3	15.3	47.0
Buildings and other structures	.8	26.4	7.3	20.6
Machinery and equipment	2.8	11.9	8.0	26.3

Note: Retirements and depreciation data for establishments not included in the ASM sample were extrapolated from the historical ratio of retirements or depreciation to assets. These ratios were developed at the industry level.

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Flat glass (SIC 3211)		Glass containers (SIC 3221)		Pressed and blown glass, n.e.c. (SIC 3229)		Products of purchased glass (SIC 3231)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services								
Cost of purchased services for the repair of–								
Buildings and other structures	6.4	(X)	3.8	(X)	7.8	(X)	(S)	(X)
Response coverage ratio (percent)[2]	85.6	(X)	87.7	(X)	56.8	(X)	(S)	(X)
Machinery	27.5	(X)	60.7	(X)	24.7	(X)	18.9	(X)
Response coverage ratio (percent)[2]	85.6	(X)	90.8	(X)	52.6	(X)	54.8	(X)
Cost of purchased communication services	2.3	(X)	7.9	(X)	3.9	(X)	8.3	(X)
Response coverage ratio (percent)[2]	80.7	(X)	89.6	(X)	65.8	(X)	55.6	(X)
New machinery and equipment expenditures	145.2	(X)	213.3	(X)	170.8	(X)	161.4	(X)
Automobiles, trucks, etc., for highway use	.5	10	1.0	15	1.9	5	7.3	28
Computers and peripheral data processing equipment	1.9	4	19.1	1	21.4	1	23.1	18
All other	142.8	1	193.1	1	147.5	1	131.0	5
Adjustment ratio[3]	1.0	(X)	1.0	(X)	1.1	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	645.8	(X)	1 606.9	(X)	884.7	(X)	2 341.1	(X)
Materials purchased or transferred from foreign sources[4]	8.2	8	9.0	19	28.1	6	52.9	8
Materials purchased or transferred from domestic sources	637.6	1	1 597.9	1	856.6	1	2 248.1	1
Adjustment ratio[3]	1.3	(X)	1.8	(X)	2.1	(X)	1.4	(X)

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to total employment for all establishments classified in industry. (See appendixes for explanation of sample weight.)
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response to the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers or where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. Industry Statistics by Employment Size of Establishment: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 3211, FLAT GLASS												
Total	-	**84**	**14.5**	**508.7**	**11.8**	**24.9**	**397.6**	**1 618.4**	**915.3**	**2 549.3**	**151.3**	**263.8**
Establishments with an average of–												
1 to 4 employees	E7	28	.1	.9	(Z)	.1	.7	2.2	1.5	3.7	.2	.7
5 to 9 employees	E3	8	.1	1.0	(Z)	.1	.8	2.5	1.6	4.1	.3	.8
10 to 19 employees	E4	10	.2	2.1	.1	.2	1.5	5.3	3.3	8.7	.3	1.5
20 to 49 employees	-	10	.3	8.7	.2	.5	5.1	22.5	16.2	38.5	2.8	4.9
50 to 99 employees	-	5	.3	6.7	.2	.5	4.8	15.7	23.4	39.0	.6	4.4
100 to 249 employees	-	5	.9	24.0	.7	1.5	17.1	120.0	87.3	209.4	26.4	22.4
250 to 499 employees	-	5	1.7	48.1	1.4	2.8	35.4	220.8	94.7	318.3	6.6	26.0
500 to 999 employees	-	10	11.0	415.2	9.0	19.3	332.3	1 229.4	687.2	1 927.6	114.1	203.2
1,000 to 2,499 employees	-	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 3221, GLASS CONTAINERS												
Total	-	**106**	**41.1**	**1 065.2**	**36.0**	**70.8**	**892.4**	**2 766.2**	**2 037.9**	**4 777.9**	**226.6**	**737.6**
Establishments with an average of–												
1 to 4 employees	E6	9	(Z)	.4	(Z)	(Z)	.3	1.0	.6	1.6	.1	.2
5 to 9 employees	-	4	.2	3.7	.2	.3	2.6	10.0	7.7	17.4	.3	2.8
20 to 49 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
100 to 249 employees	E2	10	2.1	52.8	1.9	3.6	43.4	140.4	112.6	253.5	15.0	38.1
250 to 499 employees	-	51	18.6	470.2	16.1	31.0	383.0	1 336.2	933.6	2 255.7	72.5	336.6
500 to 999 employees	-	26	20.2	538.1	17.9	35.8	463.1	1 276.6	983.3	2 249.7	138.8	360.0
1,000 to 2,499 employees	-	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.												
Total	**E1**	**417**	**36.4**	**896.5**	**29.9**	**58.8**	**685.7**	**2 304.5**	**1 221.2**	**3 568.0**	**195.8**	**600.6**
Establishments with an average of–												
1 to 4 employees	E9	145	.3	4.1	.2	.4	3.1	10.9	5.8	16.6	.9	2.7
5 to 9 employees	E7	74	.5	8.5	.4	.8	6.4	20.0	11.4	31.6	1.5	4.6
10 to 19 employees	E6	79	1.0	18.1	.8	1.6	13.4	39.8	24.5	64.2	2.8	10.7
20 to 49 employees	E5	30	.9	16.0	.7	1.3	11.6	36.5	20.5	57.0	2.1	10.2
50 to 99 employees	E1	23	1.6	33.5	1.3	2.6	23.3	82.6	64.8	152.8	7.7	24.5
100 to 249 employees	-	28	4.4	112.3	3.5	6.6	86.1	339.0	132.4	471.2	30.0	80.9
250 to 499 employees	E1	14	5.3	135.3	4.0	8.1	92.9	331.5	150.9	482.3	30.3	93.8
500 to 999 employees	-	15	10.5	272.4	8.7	17.3	211.7	733.9	388.9	1 126.8	64.7	154.8
1,000 to 2,499 employees	-	9	11.9	296.3	10.2	20.1	237.2	710.4	422.2	1 165.5	55.9	218.4
Covered by administrative records[2]	E9	252	1.5	23.0	1.3	2.4	17.4	54.5	29.1	83.7	4.5	13.5

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS												
Total	-	**1 429**	**51.1**	**1 059.9**	**39.5**	**79.9**	**720.0**	**2 837.0**	**2 587.0**	**5 429.1**	**204.3**	**660.4**
Establishments with an average of—												
1 to 4 employees	E9	610	1.1	16.9	.9	1.6	11.6	41.3	39.2	80.6	2.5	9.3
5 to 9 employees	E6	204	1.3	22.4	1.0	2.0	15.7	54.7	51.3	106.1	2.9	12.5
10 to 19 employees	E3	184	2.5	42.3	1.9	3.6	27.7	97.3	85.2	183.1	6.0	21.1
20 to 49 employees	E1	209	6.8	127.9	5.2	10.2	83.1	306.0	292.9	596.1	17.7	69.7
50 to 99 employees	-	106	7.3	136.2	5.6	11.2	88.2	362.3	356.2	718.9	24.8	78.0
100 to 249 employees	-	70	11.0	214.8	8.7	17.2	144.6	561.6	547.8	1 093.3	38.6	135.8
250 to 499 employees	-	29	10.3	243.5	7.7	15.7	162.7	600.4	515.8	1 122.4	51.1	167.7
500 to 999 employees	-	16	10.8	255.9	8.6	18.3	186.5	813.2	698.5	1 528.7	60.7	166.4
1,000 to 2,499 employees	-	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	705	2.2	30.6	1.7	3.3	20.8	75.3	72.3	147.6	4.2	17.4

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

[1]Payroll and sales data for some small single unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1987 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1987

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees: Number (1,000)	All employees: Payroll (million dollars)	Production workers: Number (1,000)	Production workers: Hours (millions)	Production workers: Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
3211	**Flat glass:**										
	All establishments in industry	84	14.5	508.7	11.8	24.9	397.6	1 618.4	915.3	2 549.3	151.3
	Establishments with this product class primary:										
32113	Laminated glass (see also code 32313)	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
32114	Other glass products	15	4.0	159.2	3.4	7.5	128.8	423.2	194.3	620.1	57.6
32115	Flat glass	19	8.3	272.5	6.6	13.6	209.0	1 035.3	571.4	1 605.2	74.3
3221	**Glass containers:**										
	All establishments in industry	106	41.1	1 065.2	36.0	70.8	892.4	2 766.2	2 037.9	4 777.9	226.6
3229	**Pressed and blown glass, n.e.c.:**										
	All establishments in industry	417	36.4	896.5	29.9	58.8	685.7	2 304.5	1 221.2	3 568.0	195.8
	Establishments with this product class primary:										
32293	Glass fiber, textile-type	18	9.5	269.0	7.9	16.6	214.0	756.1	453.8	1 236.5	64.2
32295	Machine-made table, kitchen, art, and novelty glassware	24	8.1	175.6	6.8	12.2	134.3	372.1	201.8	600.7	26.0
32296	Machine-made lighting and electronic glassware	19	5.8	157.4	4.8	9.3	123.7	428.9	203.3	625.7	56.5
32297	All other machine-made glassware	31	5.2	134.3	3.9	8.0	93.8	361.8	133.0	490.0	19.8
32298	Handmade pressed and blown glassware	28	.7	34.5	1.3	2.6	25.1	72.6	27.7	100.7	2.7
3231	**Products of purchased glass:**										
	All establishments in industry	1 429	51.1	1 059.9	39.5	79.9	720.0	2 837.0	2 587.0	5 429.1	204.3
	Establishments with this product class primary:										
32311	Machine-made pressed and blown glassware, made of purchased glass	61	4.4	88.3	3.5	6.9	61.9	330.1	329.1	663.4	10.2
32312	Handmade pressed and blown glassware, made of purchased glass	14	.9	19.3	.8	1.6	14.6	41.3	16.5	58.1	1.5
32313	Laminated glass (see also code 32113)	61	7.2	163.4	5.4	11.1	114.3	532.6	465.3	999.5	38.4
32315	Mirrors (decorated or undecorated)	66	7.8	131.3	6.3	12.4	86.9	277.5	337.3	614.3	9.7
32318	Other glass products, made of purchased glass	304	23.3	526.9	17.8	36.6	353.4	1 342.4	1 166.5	2 507.0	129.0

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Shipments and Primary Product Shipments and Specialization and Coverage Ratios for the Industry: 1987 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio col. B ÷ col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio col. B ÷ col. F (percent)
		A	B	C	D	E	F	G	H	I
3211	Flat glass									
	1987	2 549.3	2 422.0	76.2	51.0	97	2 426.0	2 422.0	4.0	99+
	1982	1 665.5	(D)	(D)	96.4	95	3 167.5	(D)	(D)	(D)
	1977	1 576.6	(D)	(D)	34.2	90	2 575.7	(D)	(D)	(D)
3221	Glass containers									
	1987	4 777.9	4 709.9	48.2	19.8	99	4 720.7	4 709.9	10.8	99+
	1982	5 216.8	5 143.6	42.7	30.5	99	5 143.8	5 143.6	.2	99
	1977	3 664.2	3 611.1	32.6	20.4	99	3 618.0	3 611.1	6.9	99
3229	Pressed and blown glass, n.e.c.									
	1987	3 568.0	3 440.8	51.9	75.3	99	3 547.6	3 440.8	106.8	97
	1982	2 724.0	2 609.9	96.3	27.3	97	3 390.8	2 609.9	780.9	77
	1977	2 120.1	2 009.5	71.7	38.8	97	2 398.8	2 009.5	389.3	84
3231	Products of purchased glass									
	1987	5 429.1	5 213.1	62.5	153.1	99	5 585.8	5 213.5	372.3	93
	1982	2 976.5	(D)	(D)	89.5	95	5 535.8	(D)	(D)	(D)
	1977	1 842.4	(D)	(D)	45.2	95	4 247.8	(D)	(D)	(D)

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3211- --	**GLASS AND GLASS PRODUCTS (MADE BY FLAT GLASS PRODUCERS) (SEE ALSO GLASS PRODUCTS MADE BY ESTABLISHMENTS NOT PRODUCING FLAT GLASS UNDER CODE 3231)**						
	Total	**(NA)**	**(X)**	**2 426.0**	**(NA)**	**(NA)**	**(NA)**
32113 --	Laminated glass (see also code 32313)	(NA)	(X)	321.5	(NA)	(X)	(D)
32113 21	For construction/architectural uses, mil sq ft	3	(D)	(D)	2	(D)	(D)
32113 41	For automotive uses, do.	2	(D)	(D)	2	(D)	(D)
32113 69	For other uses, do.	-	-	-	(NA)	(D)	(D)
32113 00	Laminated glass, n.s.k.	(NA)	(X)	(D)	(NA)	-	-
32114 --	Other glass products	(NA)	(X)	632.5	(NA)	(X)	424.6
32114 11	Rolled and wire glass (for additional detail, see Current Industrial Report MQ-32A, Flat Glass)	3	(X)	(S)	4	(X)	20.8
32114 21	Tempered glass for automotive use (see also code 32318 81), mi sq ft	3	(D)	(D)	2	(D)	(D)
32114 23	Tempered glass for architectural and construction purposes, including glass for shower doors and entrance doors (excluding multiple-sealed insulating units) (see also code 32318 83), do.	4	(S)	167.2	5	196.3	108.4
32114 29	Tempered glass for other uses, such as for appliances (excluding multiple-sealed insulating units) (see also code 32318 89), do.	1	(D)	(D)	2	(D)	(D)
32114 31	Multiple glazed, sealed insulating units (see also code 32318 71), do.	4	(D)	(D)	3	**3.8	5.4
32114 39	Other glass products (including such items as bent, enameled, stained, leaded, faceted, and colored glass slabs, etc.), do.	11	(S)	365.3	11	192.8	69.7
32114 00	Other glass products, n.s.k.	(NA)	(X)	(Z)	(NA)	(X)	-
32115 --	Flat glass:						
32115 00	Raw flat glass (float, sheet, and plate) (for additional detail, see Current Industrial Report MQ-32A, Flat Glass)	11	(X)	1 469.9	8	(X)	869.9
32110 --	Glass and glass products, n.s.k.	(NA)	(X)	2.1	(NA)	(NA)	(NA)
32110 00	Glass and glass products, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	2.1	(NA)	(NA)	(NA)
32110 02	Glass and glass products, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	-	(NA)	(NA)	(NA)

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3221- --	**GLASS CONTAINERS**						
	Total	**(NA)**	**(X)**	**4 720.7**	**(NA)**	**(X)**	**5 143.8**
32210 --	Glass containers:						
32210 00	Glass containers (for additional detail, see Current Industrial Report M-32G, Glass Containers)	36	(X)	4 720.7	(NA)	(X)	5 143.8
32210 02	Glass containers, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	-	(X)	(X)	-
3229- --	**PRESSED AND BLOWN GLASS, N.E.C. (MADE BY ESTABLISHMENTS PRODUCING GLASS) (SEE ALSO GLASS PRODUCTS MADE BY ESTABLISHMENTS NOT PRODUCING GLASS UNDER CODE 3231)**						
	Total	**(NA)**	**(X)**	**3 547.6**	**(NA)**	**(NA)**	**(NA)**
32293 --	Glass fiber, textile type:						
32293 00	Glass fiber, textile type (for additional detail, see Current Industrial Report MA-32J, Fibrous Glass)	14	(X)	1 226.0	(NA)	(X)	768.2
32295 --	Machine-made table, kitchen, art, and novelty glassware:						
32295 00	Machine-made table, kitchen, art, and novelty glassware (for additional detail, see Current Industrial Report MA-32E, Consumer, Scientific, Technical, and Industrial Glassware)	18	(X)	598.7	(NA)	(NA)	(NA)
32296 --	Machine-made lighting and electronic glassware:						
32296 00	Machine-made lighting and electronic glassware (for additional detail, see Current Industrial Report MA-32E, Consumer, Scientific, Technical, and Industrial Glassware)	14	(X)	637.1	(NA)	(NA)	(NA)
32297 --	All other machine-made glassware:						
32297 00	All other machine-made glassware, including technical and scientific glassware, glass blocks, and lens blanks (for additional detail, see Current Industrial Report MA-32E, Consumer, Scientific, Technical, and Industrial Glassware)	34	(X)	477.1	(NA)	(NA)	(NA)
32298 --	Hand-made pressed and blown glassware:						
32298 00	Hand-made pressed and blown glassware (for additional detail, see Current Industrial Report MA-32E, Consumer, Scientific, Technical, and Industrial Glassware)	25	(X)	102.9	(NA)	(NA)	(NA)
32290 --	Pressed and blown glass, n.e.c., n.s.k.	(NA)	(X)	505.9	(NA)	(NA)	(NA)
32290 00	Pressed and blown glass, n.e.c., n.s.k., typically for establishments with 20 employees or more (see note)	(NA)	(X)	422.3	(NA)	(NA)	(NA)
32290 02	Pressed and blown glass, n.e.c., n.s.k., typically for establishments with less than 20 employees (see note)	(NA)	(X)	83.6	(NA)	(NA)	(NA)
3231- --	**GLASS PRODUCTS (MADE IN ESTABLISHMENTS NOT PRODUCING GLASS) (SEE ALSO GLASS AND GLASS PRODUCTS MADE IN ESTABLISHMENTS PRODUCING GLASS UNDER CODES 3211 AND 3229)**						
	Total	**(NA)**	**(X)**	**5 585.8**	**(NA)**	**(NA)**	**(NA)**
32311 --	Machine-made pressed and blown glassware, made of purchased glass:						
32311 00	Machine-made pressed and blown glassware (including table, kitchen, art and novelty glassware; lighting and electronic glassware) (for additional detail, see Current Industrial Report MA-32E, Consumer, Scientific, Technical, and Industrial Glassware)	60	(X)	710.0	(NA)	(NA)	(NA)
32312 --	Hand-made pressed and blown glassware, made of purchased glass:						
32312 00	Hand-made pressed and blown glassware (for additional detail, see Current Industrial Report MA-32E, Consumer, Scientific, Technical, and Industrial Glassware)	16	(X)	77.3	(NA)	(NA)	(NA)
32313 --	Laminated glass (see also code 32113)	(NA)	(X)	1 083.0	(NA)	(X)	(D)
32313 21	For construction/architectural uses ... mil sq ft	40	(D)	(D)	30	(D)	(D)
32313 41	For automotive uses ... do.	19	(D)	(D)	24	(D)	(D)
32313 69	For other uses ... do.	30	(S)	190.6	(NA)	(D)	(D)
32313 00	Laminated glass, n.s.k.	(NA)	(X)	(D)	(NA)	-	-
32315 --	Mirrors (decorated or undecorated)	(NA)	(X)	775.2	(NA)	(X)	460.1
32315 21	Framed mirrors ... mil sq ft	56	(S)	275.2	74	(S)	162.3
32315 41	Unframed mirrors ... do.	59	(S)	301.1	62	(S)	211.7
32315 71	Automotive mirrors	18	(X)	195.5	26	(X)	104.5
32315 00	Mirrors (decorated or undecorated), n.s.k.	(NA)	(X)	3.4	(NA)	(X)	1.7

See footnotes at end of table.

Table 6a-1. Product and Product Classes—Quantity and Value of Shipments by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) are also included. For further explanation, see Value of Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
3231- —	**GLASS PRODUCTS (MADE IN ESTABLISHMENTS NOT PRODUCING GLASS) (SEE ALSO GLASS AND GLASS PRODUCTS MADE IN ESTABLISHMENTS PRODUCING GLASS UNDER CODES 3211 AND 3229)**—Con.						
32318 --	Other glass products, made of purchased glass	(NA)	(X)	2 377.9	(NA)	(X)	1 189.2
32318 21	Stained, leaded, and faceted glass and colored glass slabs, mi sq ft.	52	(S)	62.6	(NA)	(NA)	(NA)
32318 71	Multiple-glazed, sealed, insulating glass units (see also code 32114 31)	77	(X)	(D)	89	(X)	296.2
32318 81	Tempered glass for automotive use (see also code 32114 21), mi sq ft.	16	(D)	(D)	17	(D)	(D)
32318 83	Tempered glass for architectural and construction purposes, including glass for shower doors and entrance doors (excluding multiple-sealed insulating units) (see also code 32114 23), do.	85	(S)	446.4	83	**188.2	299.7
32318 89	Tempered glass for other uses, such as for appliances (excluding multiple-sealed insulating units) (see also code 32114 29), do.	23	(D)	(D)	32	(D)	(D)
32318 92	Glass fiber data and nondata transmission	14	(X)	265.5	(NA)	(NA)	(NA)
32318 95	Glass and glass fiber optical components	4			(NA)	(NA)	(NA)
32318 99	Other glass products (excluding laminated glass, tempered glass, mirrors, glass fiber data transmission, and optical components), including such items as bent (except when made into tableware), enameled, and rolled glass; watch crystals; etc.	79	(X)	281.8	(NA)	(NA)	(NA)
32318 00	Other glass products made of purchased glass, n.s.k.	(NA)	(X)	53.5	(NA)	(X)	2.4
32310 --	Products made of purchased glass, n.s.k.	(NA)	(X)	562.6	(NA)	(X)	181.5
32310 00	Products made of purchased glass, n.s.k., typically for establishments with 10 employees or more (see note)	(NA)	(X)	418.9	(NA)	(X)	83.7
32310 02	Products made of purchased glass, n.s.k., typically for establishments with less than 10 employees (see note)	(NA)	(X)	143.7	(NA)	(X)	77.8

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-records data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriateproduct class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[3]For 1987, product code 32114 11 is included with product code 32114 39 to avoid disclosing data for individual companies.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
	MQ32A, FLAT GLASS				
32115 —	Flat glass, mil sq ft.	[1]4 073.9	[1]1 457.6	[1]3 153.7	[1]892.1
	By type:				
32115 12	Sheet, plate, and float glass up to and including .107 inch, mil sq ft.	[2]2 178.9	495.5	[2]1 417.4	285.8
32115 13	108 inch through .134 inch, do.	882.0	297.0	[2]648.5	144.6
32115 14	135 inch through .199 inch, do.	621.9	289.0	[2]554.2	160.7
32115 15	200 inch through .244 inch, do.	[2]602.1	376.2	[2]533.5	300.9
32115 16	More than .244 inch, do.				

See footnotes at end of table.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982—Con.

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987 product shipments		1982 product shipments	
		Quantity	Value (million dollars)	Quantity	Value (million dollars)
	MA32E, CONSUMER, SCIENTIFIC, TECHNICAL, AND INDUSTRIAL GLASSWARE				
	Machine-made pressed and blown glassware:				
	Consumer (table, kitchen, art, and novelty) glassware:				
32295 21	Tumblers, mil doz	45.3	180.5		
32295 22	Stemware, do	11.2	94.4	(NA)	425.4
32295 23	Tableware, mil pieces	114.2	90.9		
32295 25	Cookware, ovenware, and kitchenware (except microwave specialty pieces), do	50.3	42.3	88.7	177.2
32295 27	Microwave specialty pieces, do				
32295 28	Ornamental, decorative, novelty glassware, and smokers' accessories	(X)	(2)	(X)	112.3
32295 38	Other table, kitchen, art, and novelty glassware (excluding tumblers, stemware, etc.)	(X)	-	(X)	(NA)
32295 39	Interplant transfers and shipments of partially made glassware to other glassware establishments	(X)	3123.7	(X)	(4)
	Lighting, automotive, and electronic glassware:				
32296 41	Automotive lighting glassware	(X)	(5)	(X)	(5)
32296 43	Search light and other lenses				
32296 45	Electric light bulb blanks				
32296 47	Tubing and cane for electric light bulbs and florescent and neon lighting	(X)	592.8	(X)	479.8
32296 51	Electronic tube blanks, radio, x-ray, etc. (except television)				
32296 55	Television tube blanks and parts: tubing, cane, andglass parts for electronic tubes and devices				
32296 57	Lamp chimneys, shades, bowls, globes, parts, and other glassware, interior	(X)	49.8	(X)	(5)
32296 59	Lamp chimneys, shades, bowls, globes, parts, and other glassware, exterior			(X)	663.1
32296 65	Other lighting and electronic glassware	(X)	5215.9	(X)	(NA)
32296 69	Interplant transfers and shipments of partially made glassware to other glassware establishments			(X)	6154.4
	All other glassware:				
32297 71	Tubing, rods and canes, all types (except electrical and electronic)	(X)	(D)	(X)	16.8
32297 72	Scientific and laboratory glassware, reusable	(X)	76.6	(X)	114.6
32297 74	Scientific and laboratory glassware, disposable	(X)	60.7	(X)	(NA)
32297 75	Technical and industrial glassware	(X)	83.7	(X)	46.9
32297 77	Ophthalmic lens blanks and optical instruments lens blanks	(X)	(D)		
32297 79	Other glassware (radomes, nose cones, nursery bottles, vials, etc.)	(X)	62.5	(X)	178.6
32297 89	Interplant transfers and shipments of partially made glassware to other glassware establishments	(X)	(D)		
	Handmade pressed and blown glassware:				
	Consumer (table, kitchen, art, and novelty glassware):				
32298 21	Tumblers, mil doz	(D)	2.2		
32298 22	Stemware, do	.5	22.5	(NA)	32.4
32298 23	Tableware, mil pieces	2.1	13.6		
32298 25	Cookware, ovenware, and kitchenware (except microwave specialty pieces), do	-	-		
32298 27	Microwave specialty pieces, do	-	-		
32298 28	Ornamental, decorative, novelty glassware, and smokers' accessories	(X)	-	(NA)	473.1
32298 38	Other table, kitchen, art, and novelty glassware (excluding tumblers, stemware, etc.)	(X)	(7)		
32298 39	Interplant transfers and shipments of partially made glassware to other glassware establishments	(X)	793.1		
	Lighting, automotive, and electronic glassware:	(X)	(5)	(X)	(5)
32298 41	Automotive lighting glassware			(X)	(5)
32298 43	Search light and other lenses			(X)	(5)
32298 45	Electric light bulb blanks				
32298 47	Tubing and cane for electric light bulbs and florescent and neon lighting	(X)	11.3	(X)	(5)
32298 51	Electronic tube blanks, radio, x-ray, etc. (except television)			(X)	(5)
32298 55	Television tube blanks and parts: tubing, cane, andglass parts for electronic tubes and devices			(X)	(5)
32298 57	Lamp chimneys, shades, bowls, globes, parts, and other glassware, interior	(X)	22.5	(X)	(5)
32298 59	Lamp chimneys, shades, bowls, globes, parts, and other glassware, exterior			(X)	(5)
32298 65	Other lighting and electronic glassware	(X)	8.5	(X)	(5)
32298 69	Interplant transfers and shipments of partially made glassware to other glassware establishments			(X)	(5)
	All other glassware:				
32298 71	Tubing, rods and canes, all types (except electrical and electronic)	(X)	(D)	(X)	(5)
32298 72	Scientific and laboratory glassware, reusable	(X)	19.7	(X)	(5)
32298 74	Scientific and laboratory glassware, disposable	(X)	1.6	(X)	(5)
32298 75	Technical and industrial glassware				
32298 77	Ophthalmic lens blanks and optical instruments lens blanks	(X)	(D)	(X)	(5)
32298 79	Other glassware (radomes, nose cones, nursery bottles, vials, etc.)	(X)	1.1	(X)	(5)
32298 89	Interplant transfers and shipments of partially made glassware to other glassware establishments	(X)	(D)	(X)	(5)
	M32G, GLASS CONTAINERS				
32210 --	Glass containers, mil gr	(X)	4 649.9	(X)	5 001.7
	Narrow neck:				
32210 11	Food, mil gr	27.3	449.0	27.7	541.5
32210 13	Medicinal and health, do	108.5	10199.6	12.4	199.7
32210 15	Chemical, household, and industrial, do	101.4	10147.7	1.4	38.3
32210 17	Toiletries and cosmetics, do	105.6	1081.7	7.9	117.6

See footnotes at end of table.

Table 6a-2. Related Products From Current Industrial Reports Series—Value of Shipments by All Producers: 1987 and 1982—Con.

[Additional detail is provided in the Current Industrial Report series. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product		1987 product shipments		1982 product shipments	
			Quantity	Value (million dollars)	Quantity	Value (million dollars)
	M32G, GLASS CONTAINERS—Con.					
32210 --	Glass containers—Con.					
	Narrow neck—Con.					
32210 17	Toiletries and cosmetics—Con.					
32210 19	Beverage, refillable	mil gr.	62.4	751.4	3.7	116.8
32210 50	Beverage, nonrefillable	do.			57.3	771.7
32210 23	Beer, refillable	do.	2.4	44.4	1.9	36.2
32210 60	Beer, nonrefillable	do.	83.0	1 102.5	106.0	1 217.4
32210 27	Liquor	do.	11.8	415.8	13.9	433.5
32210 29	Wine	do.	16.5	471.1	8.4	364.1
	Wide mouth:					
32210 31	Food	mil gr.	62.7	1 086.6	[11]83.4	[11] 084.1
32210 37	Dairy products	do.			([11])	([11])
32210 32	Medicinal and health	do.	([10])	([10])	3.1	44.9
32210 33	Chemical, household, and industrial	do.			1.2	21.5
32210 34	Toiletries and cosmetics	do.			.7	13.3
	MA32J, FIBROUS GLASS					
32293 --	Textile-type fiber	mil lb.	(X)	1 216.4	(X)	765.3
32293 21	Yarn, strand, staple yarn, and sliver	do.	([12])	([12])	183.1	235.5
32293 23	Roving, chopped strand, and milled fiber	do.	1 171.5	657.2	561.3	379.8
32293 25	Mat	do.	[12]513.1	[12]559.2	122.0	117.4
32293 29	Other textile-type fiber	do.			47.2	32.6
	Optical fiber:					
	Optical fiber used for data purposes:					
32318 30	Glass fiber, single mode	1,000 lb.				
32318 32	Glass fiber, multimode	do.				
32318 34	Plastics clad glass fiber	do.				
32318 36	All plastics optical fiber	do.				
32318 38	All other optical fibers used for data purposes	do.				
	Optical fiber used for nondata purposes:		(NA)	268.1	(NA)	(NA)
32318 40	Noncoherent (random) fiber bundles	1,000 lb.				
32318 42	Coherent (nonrandom) fiber bundles	do.				
32318 44	Faceplates	do.				
32318 46	Sensors	do.				
32318 48	All other optical fiber materials used for nondata purposes	do.				

[1]Data reported include rolled and wire glass.
[2]Quantity includes produced and consumed.
[3]For 1987, data for product code 32295 28 are included with product code 32295 39.
[4]For 1982, data for product code 32295 39 were included with product codes 32298 25, 32298 27, 32298 28, 32298 38, and 32298 39.
[5]For 1987 and 1982, data for product code 32296 41 are included with product code 32296 69.
[6]For 1982, data for product code 32296 57 were included with product code 32296 59.
[7]For 1987, data for product code 32298 38 are included with product code 32298 39.
[8]For 1987, data for product code 32298 41 are included with product codes 32298 59, 32298 65, and 32298 69.
[9]For 1982, data for handmade pressed and blown glassware were included with data for machine-made pressed and blown glassware.
[10]For 1987, data for wide mouth containers are included with narrow neck.
[11]For 1982, data for product code 3221037 were included with product code 32210 31.
[12]For 1987, data for product code 32293 21 are included with product codes 32293 25 and 32293 29.

Table 6a-3. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) also are included. For further explanation, see Value Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product		1987			1982		
			Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
				Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Laminated glass		(NA)	(X)	1 404.5	(NA)	(X)	697.2
32113	Made by glass producers		(NA)	(X)	321.5	(NA)	(X)	(D)
32313	Made from purchased glass		(NA)	(X)	1 083.0	(NA)	(X)	(D)
	For construction-architectural use	mil sq ft.	(NA)	(D)	257.7	32	113.2	114.8
32113 21	Made by glass producers	do.	3	(D)	(D)	2	(D)	(D)
32313 21	Made from purchased glass	do.	40	(D)	(D)	30	(D)	(D)
	For automotive uses	do.	(NA)	281.6	867.3	25	351.5	531.8
32113 41	Made by glass producers	do.	2	(D)	(D)	2	(D)	(D)
32313 41	Made from purchased glass	do.	19	(D)	(D)	24	(D)	(D)
	For other uses	do.	(NA)	(S)	190.6	15	16.3	50.6
32113 69	Made by glass producers	do.	-	-	-	(NA)	(D)	(D)
32313 69	Made from purchased glass	do.	30	(S)	190.6	(NA)	(D)	(D)
	Laminated glass, n.s.k.		(NA)	(X)	88.9	(NA)	(X)	-
32113 00	Made by glass producers		(NA)	(X)	(D)	(NA)	(X)	-
32313 00	Made from purchased glass		(NA)	(X)	(D)	(NA)	(X)	-

See footnotes at end of table.

Table 6a-3. Selected Products Primary to More Than One Industry—Quantity and Value of Shipments by Industry: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). Transfers of products of this industry from one establishment of a company to another establishment of the same company (interplant transfers) also are included. For further explanation, see Value Shipments in appendixes. For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with shipments of $100,000 or more	Product shipments[1]		Number of companies with shipments of $100,000 or more	Product shipments[1]	
			Quantity[2]	Value (million dollars)		Quantity[2]	Value (million dollars)
	Other glass products:						
	Tempered glass for automotive use ... mil sq ft	(NA)	656.3	1 037.9	19	329.5	444.7
32114 21	Made by glass producers ... do	3	(D)	(D)	2	(D)	(D)
32318 81	Made from purchased glass ... do	16	(D)	(D)	17	(D)	(D)
	Tempered glass for architectural and construction purposes, including glass for shower and entrance doors ... do	(NA)	592.2	613.6	88	384.5	408.1
32114 23	Made by glass producers ... do	4	(S)	167.2	5	196.3	108.4
32318 83	Made from purchased glass ... do	85	(S)	446.4	83	188.2	299.7
	Tempered glass for other uses, such as appliances ... do	(NA)	114.6	168.5	32	73.1	107.9
32114 29	Made by glass producers ... do	1	(D)	(D)	2	(D)	(D)
32318 89	Made from purchased glass ... do	23	(D)	(D)	30	(D)	(D)
	Multiple-glazed, sealed insulating units ...	(NA)	(X)	461.6	92	-	301.5
32114 31	Made by glass producers ... mil sq ft	4	(D)	(D)	3	3.8	5.4
32318 71	Made from purchased glass ...	77	(X)	(D)	89	(X)	296.2
	Pressed and blown glassware ...	(NA)	(X)	4 334.9	(NA)	(X)	(NA)
3229	Made by glass producers ...	(NA)	(X)	3 547.6	(NA)	(X)	(NA)
32311	Made from purchased glass, machine-made ...	(NA)	(X)	710.0	(NA)	(X)	(NA)
32312	Made from purchased glass, handmade ...	(NA)	(X)	77.3	(NA)	(X)	(NA)
	Machine-made pressed and blown glassware ...	(NA)	(X)	2 422.9	(NA)	(X)	(NA)
	Made by glass producers:						
32295	Machine-made table, kitchen, art, and novelty glassware ...	(NA)	(X)	598.7	(NA)	(X)	(NA)
32296	Machine-made lighting and electronic glassware ...	(NA)	(X)	637.1	(NA)	(X)	(NA)
32297	Machine-made, all other ...	(NA)	(X)	477.1	(NA)	(X)	(NA)
32311	Made from purchased glass ...	(NA)	(X)	710.0	(NA)	(X)	(NA)
	Handmade pressed and blown ...	(NA)	(X)	180.2	(NA)	(X)	(NA)
32298	Made by glass producers ...	(NA)	(X)	102.9	(NA)	(X)	(NA)
32312	Made from purchased glass ...	(NA)	(X)	77.3	(NA)	(X)	(NA)

[1]Data reported by all producers, not just those with shipments of $100,000 or more.
[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1987 and 1982

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

Product class and geographic area	1987 value of product shipments	1982 value of product shipments
32115, FLAT GLASS		
United States	**1 489.9**	**869.9**
California	170.5	82.4
32293, GLASS FIBER, TEXTILE-TYPE		
United States	**1 226.0**	**768.2**
California	18.8	13.6
Tennessee	95.6	(NA)
32295, MACHINE-MADE TABLE, KITCHEN, ART, AND NOVELTY GLASSWARE		
United States	**598.7**	**(NA)**
Ohio	191.3	(NA)
Pennsylvania	51.2	(NA)
32296, MACHINE-MADE LIGHTING AND ELECTRONIC GLASSWARE		
United States	**637.1**	**(NA)**
Ohio	335.3	(NA)
Pennsylvania	153.0	(NA)
32297, ALL OTHER MACHINE-MADE GLASSWARE		
United States	**477.1**	**(NA)**
California	7.5	(NA)
Pennsylvania	52.7	(NA)
32298, HANDMADE PRESSED AND BLOWN GLASSWARE		
United States	**102.9**	**(NA)**
California	12.8	(NA)
New Jersey	15.5	(NA)
32311, MACHINE-MADE PRESSED AND BLOWN GLASSWARE, MADE OF PURCHASED GLASS		
United States	**710.0**	**(NA)**
California	12.6	(NA)
Illinois	9.1	(NA)
New Jersey	72.5	(NA)
32312, HANDMADE PRESSED AND BLOWN GLASSWARE, MADE OF PURCHASED GLASS		
United States	**77.3**	**(NA)**
California	3.1	(NA)
New Jersey	13.4	(NA)
Tennessee	6.0	(NA)
32313, LAMINATED GLASS (SEE ALSO CODE 32113)		
United States	**1 083.0**	**(NA)**
California	59.4	(NA)
Indiana	86.8	(NA)
New York	9.3	(NA)

Table 6b. Product Classes—Value of Shipments by All Producers for Specified States: 1987 and 1982—Con.

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

Product class and geographic area	1987 value of product shipments	1982 value of product shipments
32313, LAMINATED GLASS (SEE ALSO CODE 32113)—Con.		
Ohio	144.6	(NA)
Pennsylvania	180.4	(NA)
32315, MIRRORS (DECORATED OR UNDECORATED)		
United States	**775.2**	**480.1**
California	101.7	66.7
Florida	9.4	3.8
Indiana	12.6	32.1
Massachusetts	4.1	(NA)
Michigan	55.4	29.0
Missouri	5.3	(NA)
New Jersey	21.4	14.1
New York	68.5	43.9
North Carolina	140.4	100.5
Ohio	15.4	14.1
Oregon	2.1	(NA)
Tennessee	42.4	(NA)
Virginia	78.9	26.3
32318, OTHER GLASS PRODUCTS, MADE OF PURCHASED GLASS		
United States	**2 377.9**	**1 189.2**
Arizona	11.5	9.4
Arkansas	25.1	(NA)
California	162.1	155.3
Colorado	8.7	(NA)
Connecticut	26.2	12.8
Florida	45.3	28.1
Georgia	117.6	24.8
Illinois	79.1	59.7
Indiana	114.6	34.9
Iowa	83.3	18.7
Massachusetts	52.7	(NA)
Michigan	217.5	101.5
Minnesota	131.3	37.3
Missouri	20.7	(NA)
New Jersey	57.8	30.0
New York	98.0	38.4
North Carolina	180.5	52.4
Ohio	248.8	155.2
Oklahoma	30.0	6.4
Oregon	4.9	5.4
Pennsylvania	183.9	148.6
South Carolina	18.6	(NA)
Tennessee	125.7	48.7
Texas	71.6	55.1
Virginia	16.7	30.6
Washington	49.4	24.3
West Virginia	9.4	(NA)
Wisconsin	94.1	17.7

Table 6c. Historical Statistics for Product Classes—Value Shipped by All Producers: 1987 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

1987 product code	Product class	1987	1986[1]	1985[1]	1984[1]	1983[1]	1982	1977	1972
3211-	**Flat glass**	**2 426.0**	**3 103.7**	**2 761.3**	**2 472.6**	**2 305.9**	**(NA)**	**(NA)**	**(NA)**
32113	Laminated glass (see also code 32313)	321.5	[2]1 145.0	[2]1 043.1	[2]908.3	[2]807.8	(NA)	(NA)	(NA)
32114	Other glass products	632.5	702.1	597.0	585.0	488.5	424.6	360.6	193.6
32115	Flat glass	1 469.9	1 245.4	1 108.4	965.0	1 000.2	869.9	742.8	519.1
32110	Glass and glass products, n.s.k.	2.1	11.2	12.8	14.3	9.4	6.6	7.0	(NA)
3221-	**Glass containers**	**4 720.7**	**4 589.9**	**4 567.4**	**4 436.9**	**4 794.1**	**5 143.8**	**3 618.0**	**2 085.2**
32210	Glass containers	4 720.7	4 589.9	4 567.4	4 436.9	4 794.1	5 143.8	3 618.0	2 085.2
3229-	**Pressed and blown glass, n.e.c.**	**3 547.6**	**3 194.0**	**3 170.7**	**3 313.8**	**3 084.2**	**2 677.0**	**2 100.7**	**1 262.4**
32293	Glass fiber, textile-type	1 226.0	1 135.9	1 166.6	1 247.1	1 030.8	768.2	514.0	253.5
32295	Machine-made table, kitchen, art, and novelty glassware	598.7	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
32296	Machine-made lighting and electronic glassware	637.1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
32297	All other machine-made glassware	477.1	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
32298	Handmade pressed and blown glassware	102.9	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
32290	Pressed and blown glass, n.e.c., n.s.k.	505.9	60.9	63.3	57.2	40.7	39.4	50.0	14.8
3231-	**Glass products made of purchased glass**	**5 585.8**	**3 597.5**	**3 382.8**	**3 284.4**	**2 834.8**	**2 544.6**	**1 643.3**	**977.1**
32311	Machine-made pressed and blown glassware, made of purchased glass	710.0	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
32312	Handmade pressed and blown glassware, made of purchased glass	77.3	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)	(NA)
32313	Laminated glass (see also code 32113)	1 083.0	[3]	[3]	[3]	[3]	(NA)	(NA)	(NA)
32315	Mirrors (decorated or undecorated)	775.2	708.9	693.5	645.2	545.2	480.1	409.4	254.5
32318	Other glass products, made of purchased glass	2 377.9	1 602.2	1 468.3	1 475.6	1 347.2	1 189.2	758.1	625.8
32310	Products made of purchased glass, n.s.k.	562.6	289.4	213.6	188.3	171.6	161.5	177.6	96.8

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

[2]Data for product class 32313 are included in product class 32113.

Table 7. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 3211, FLAT GLASS				
	Materials, parts, containers, and supplies	**(X)**	**845.8**	**(X)**	**499.8**
144611	Glass sand, all types, 1,000 s tons	2 491.6	57.6	1 985.2	43.5
281228	Sodium carbonate (soda ash) (98 to 100 percent Na_2CO_3), do	897.2	100.8	599.2	88.5
281901	Industrial inorganic chemicals, except sodium carbonate	(X)	26.2	(X)	(D)
308100	Plastics film and sheets, unsupported	(X)	[3]	(X)	(D)
321105	Glass (float, sheet, and plate), mil sq ft	129.5	44.0	**185.5	80.6
322911	Glass tumblers, stemware, and tableware	(X)	-	(X)	(D)
322901	Other glass products	(X)	[3]	(X)	(D)
190028	Cullet (glass scrap), mil lb	(S)	24.6	(D)	(D)
329511	Nonmetallic minerals and earths, ground or otherwise treated	(X)	7.7	(X)	7.9
265001	Paperboard boxes and containers and corrugated paperboard	(X)	7.6	(X)	4.1
244021	Wood boxes, pallets, skids, and containers	(X)	53.2	(X)	25.8
242101	Rough and dressed lumber, mil board ft	(S)	10.6	(S)	16.1
970099	All other materials and components, parts, containers, and supplies	(X)	[2]298.7	(X)	129.9
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	14.8	(X)	2.5
	INDUSTRY 3221, GLASS CONTAINERS				
	Materials, parts, containers, and supplies	**(X)**	**1 606.9**	**(X)**	**1 824.9**
281228	Sodium carbonate (soda ash) (98 to 100 percent Na_2CO_3), 1,000 s tons	1 981.3	226.2	2 525.0	360.4
144611	Glass sand, all types, do	6 196.5	124.6	8 056.1	166.4
190028	Cullet (glass scrap), mil lb	(S)	81.6	1 659.4	84.1
327403	Lime, including quicklime and dead-burned dolomite, 1,000 s tons	*1 559.7	36.4	1 909.7	43.4
329511	Nonmetallic minerals and earths, ground or otherwise treated, do	(X)	55.0	*1 279.2	72.9
265001	Paperboard boxes and containers and corrugated paperboard, do	(X)	517.2	(S)	597.4
308100	Plastics film and sheet, unsupported (for wraps or labels)	(X)	50.0	(X)	36.9
354423	Purchased industrial molds	(X)	58.6	(X)	61.8
970099	All other materials and components, parts, containers, and supplies	(X)	287.7	(X)	273.3
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	169.6	(X)	128.5
	INDUSTRY 3229, PRESSED AND BLOWN GLASS, N.E.C.				
	Materials, parts, containers, and supplies	**(X)**	**884.7**	**(X)**	**672.1**
144611	Glass sand, all types, 1,000 s tons	(S)	77.5	*1 144.1	44.9
281228	Sodium carbonate (soda ash) (98 to 100 percent Na_2CO_3), do	(S)	28.7	177.9	26.9
281901	Industrial inorganic chemicals, except sodium carbonate	(X)	99.8	(X)	128.1
308100	Plastics film and sheets, unsupported	(X)	[3]	(X)	1.4
321105	Glass, (float, sheet and plate), mil sq ft	(D)	[3]		
322911	Glass tumblers, stemware, and tableware	(X)	[3]	(X)	20.0
322901	Other glass products	(X)	35.9		
190028	Cullet (glass scrap), mil lb	(S)	18.1	191.0	17.1
329511	Nonmetallic minerals and earths, ground or otherwise treated	(X)	31.8	(X)	[3]
265001	Paperboard boxes and containers and corrugated paperboard, 1,000 s tons	(X)	63.7	(S)	70.2
244021	Wood boxes, pallets, skids, and containers	(X)	7.3	(X)	9.5
242101	Rough and dressed lumber, mil board ft	(D)	[3]	(X)	[3]
970099	All other materials and components, parts, containers, and supplies	(X)	[2]394.1	(X)	[2]261.9
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	127.8	(X)	92.1
	INDUSTRY 3231, PRODUCTS OF PURCHASED GLASS				
	Materials, parts, containers, and supplies	**(X)**	**2 341.2**	**(X)**	**1 320.6**
144611	Glass sand, all types, 1,000 s tons	(S)	2.7	**499.7	5.0
321105	Glass (float, sheet, and plate), 1,000 sq ft	**2 247.8	896.7	**1 257.3	573.0
281228	Sodium carbonate (soda ash) (98 to 100 percent Na_2CO_3), 1,000 s tons	(D)	[3]	3.7	(D)
281901	Industrial inorganic chemicals, except sodium carbonate	(X)	5.8	(X)	6.0
308100	Plastics film and sheets, unsupported	(X)	73.8	(X)	46.8
322911	Glass tumblers, stemware, and tableware	(X)	[3]	(X)	29.8
322901	Other glass products	(X)	241.4	(X)	88.0
190028	Cullet (glass scrap), mil lb	(S)	20.2	414.5	20.0
329511	Nonmetallic minerals and earths, ground or otherwise treated	(X)	2.8	(X)	(D)
265001	Paperboard boxes and containers and corrugated paperboard, 1,000 s tons	(X)	95.7	(S)	20.7
244021	Wood boxes, pallets, skids, and containers	(X)	25.0	(X)	*26.2
242101	Rough and dressed lumber, mil board ft	(S)	19.2	(S)	4.5
970099	All other materials and components, parts, containers, and supplies	(X)	[2]807.9	(X)	254.3
971000	Materials, parts, containers, and supplies, n.s.k.[2]	(X)	350.0	(X)	241.7

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

[3]Data are combined with material code 970099 to avoid disclosing data for individual companies.

APPENDIX A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the General Summary subject report.

Employment and related items—The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual

industries shown in this report. They are included in the general summary and geographic area reports as a separate category.

Payroll—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1987. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides estimates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed—In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1987 census program, information was collected on the output of approximately 11,000 individual product items. The term "product", as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 terms; whereas, "motor gasoline" was reported as a single item.

Approximately 6,600 of the product items were listed separately on the 1987 census report forms. Data for

about 4,400 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1987 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a–2).

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1982 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1987 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments— The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the United States level and beginning in 1964, for all geographic levels.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases, new facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories—Respondents were asked to report their 1986 and 1987 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1987 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing", which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

1. **Supplemental labor costs**—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans.

They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

2. **Retirements of depreciable assets**—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1987. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

3. **Depreciation charges for fixed assets**—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

4. **Rental payments**—Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

   When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

   If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

5. **Depreciable assets**—Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

   The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

6. **New and used capital expenditures**—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

7. **Quantity of electric energy consumed for heat and power**—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the ASM forms. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

8. **Breakdown of new capital expenditures for machinery and equipment**—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

   The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement.

Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

9. **Foreign content of cost of materials**—Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

10. **Cost of purchased services**—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding Census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed.

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the three types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

APPENDIX B.
Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 56,000 manufacturing establishments selected from a total of about 220,000 establishments. These 220,000 establishments represent all manufacturing establishments of multiunit companies and all single establishment companies mailed schedules in the 1982 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1982 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

The 1984 through 1988 ASM sample differs slightly from the previous sample. For the current panel, all establishments of companies with 1982 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 56,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1982 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1982 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1982 Census of Manufactures. Although this portion contained approximately 130,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1983-1986 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1982 census published number for an item total and the linear ASM estimate of the total for 1982. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1983-1986. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1987 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates, however, developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

APPENDIX C.
Changes in Census of Manufactures Product Classes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

1987	1982
30521	30411
30522	30412
30523	30413
30524	30414
30525	30415
30526	30416
30534	32934
30535	32935
30536	32936
30537	32937
30538	32938
30539	32939
30611	3069A pt
30612	3069A pt
30613	3069A pt
30614	3069B pt
30615	3069B pt
30616	3069B pt
30617	3069B pt
3069C	3069C 35557 pt
3069E	30310
30810	30792
30820	3079K pt
30830	3079K pt
30840	30794
30850	30795
30861 30862 30863 30864 30865 30866	30797
30870	3079K pt
30880	3079J pt 3079K pt
30891	3079J pt 3079K pt
30892	3079J pt 3079K pt
30893	3079J pt 3079K pt
30894	3079J pt 3079K pt
30895	3079J pt
30896	2499A pt 3079J pt 3079K pt
30897	3079J pt 3079K pt
30898	3079J pt 3079K pt
30899 3089A	3079K pt
32295	32291 pt
32296	32292 pt
32297	32294 pt
32298	32291 pt 32292 pt 32294 pt
32311	32317
32312	32317
32927	32928 32929
32961	32963 32965
32962	32964 32966
33152	33152 34967
33391	33331
33392	33334
33398	33321 33323 33399
33561 33562 33563	33569
33630	33611
33640	33620 pt 33691 pt 33692 pt 33693 pt
33650	33612
33660	33620 pt
33690	33691 pt 33692 pt 33693 pt
34234	34232 pt
34235	34232 pt 35531 pt 35532 pt
34236	34233
34441 34443 34447 34448 34449	34446
34461 34462 34463 34464 34465	34460
34696 34699	34699
34911 34912 34913 34914 34915 34916	3494A
34917	34949
34918	34947
34919	34948
34921	3494B
34922	3494C
34923	3494D
34924	3494E
34925	3494F
34926	3494G
34927	3494H
3523C	35234 pt 35237 35238 pt
3523E	35234 pt 35238 pt
3523F	3523A 3523B
35246	35243 35245
3531A	35311
3531B	35312
3531C	35317
3531E	35314 pt
3531F	35315
3531G	35318 pt
3531H	35313 pt 35318 pt 35319 pt
3531K	35319 pt 35361 pt 35371 pt
3531M	35313 pt 35314 pt 35319 pt 35372 pt
35337	35331 35332 pt
35338	35332 pt
35339	35333
3533A	35335
3533B	35336
35363	35361 pt
35364	35362 pt
35373	35362 pt 35371 pt
35374	35362 pt 35372 pt
3541D	35411 35412
35430	35650
35454	35453
35455	35452
35481	36231
35482	36232
35483	36233
35484	35496
35485	35495 pt 35497
35533	35531 pt
35534	35532 pt
35543	35541 35542 pt
35544	35542 pt
35558	35557 pt
35561	35511
35562	35512
35563	35513 pt
35591	35591 35699 pt
35596	35595 pt
35597	35494
35599	35595 pt 36360 36362
35616	3561C
35631	35631 pt
35651	35513 pt 35514 pt 35691 pt
35652	35513 pt 35514 pt 35691 pt
35676	35672
35692	35694 35695 35696
35697 35698	35699 pt
35711	35731 36629 pt
35712	35734 pt 35735 pt
35721	35732 pt
35722	35734 pt 35735 pt
35751	35732 pt 36612 pt
35752	35734 pt 35735 pt
35771	35732 pt
35772	35734 pt 35735 pt
35781	35743
35782	35744
35783	35745
3585C	3585A 36993
3585D	3585B 36994 pt

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

1987	1982
35931	35996 35997
35932	35998
35933	35999
35941	35617 35618 35631 pt
35942	3561A 3561B 35631 pt
35961 35962 35963	35760
36123 36126	36125
36251	36138 pt 36794
36252	36221
36253	36222
36254	36138 pt 36223
36330	36331 36333
36395	36361 36394 36399
36411	36410
36412	36994 pt
36520	36521 pt
36613	35732 pt 36612 pt
36614	36612 pt
36631	36621 36629 pt
36632	36622
36691	36624
36692	36626
36693	36628
36714	36711 36712
36715	36799 pt
36720	36797
36799	36629 pt 36799 pt
36950	35732 pt 36792
36991 36992	36629 pt
36991—Con. 36995	36629 pt—Con.
36997	35497 pt 36629 pt
36998	36994 pt
3714A	37143
37999	37994 37998
38121	38111
38122	36625 pt 36629
38210	38112 38113 pt
38260	38320 38326
38271	38324
38272 38273	38325
38295	36625 pt 38293
38296	38113 pt
38440	38931
38450	38930 38933
38731	38734
38731—Con.	38734—Con. 38736 38737
39113 39114	39112
39153 39154	39151
39447	36629 pt 39447
39493	39494 pt
39495	3079k pt
39496	39494 pt
39523	39521 39522 pt
39524	39522 pt
39651	39630
39654	39641
39656	39642
39998	39620
39999	39995
97372	36522
97819	36521 pt

APPENDIX D.
Changes in Census of Manufactures Product Codes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published
30118 00	30118 00	30118 19 30118 20
3011A 39	3011A 39	3011A 33 3011A 35
3011C 29	3011C 29	3011C 24 3011C 26 3011C 27
30521 00	30411 00	30411 00
30522 00	30412 00	30412 00
30523 00	30413 00	30413 00
30524 00	30414 00	30414 00
30525 00	30415 00	30415 00
30526 00	30416 00	30416 00
30534 11	32934 11	32934 11
30534 13	32934 13	32934 13
30534 15	32934 15	32934 15
30534 17	32934 17	32934 17
30535 11	32935 11	32935 11
30535 13	32935 13	32935 13
30535 15	32935 15	32935 15
30535 17	32935 17	32935 17
30535 19	32935 19	32935 19
30535 21	32935 21	32935 21
30535 23	32935 23	32935 23
30535 29	32935 29	32935 29
30536 21	32936 21	32936 21
30536 22	32936 22	32936 22
30536 25	32936 25	32936 25
30536 26	32936 26	32936 26
30536 30	32936 30	32936 30
30536 35	32936 35	32936 35
30537 29	32937 29	32937 29
30537 39	32937 39	32937 39
30537 41	32937 41	32937 41
30537 43	32937 43	32937 43
30537 49	32937 49	32937 49
30538 10	32938 10	32938 10
30538 13	32938 13	32938 13
30538 15	32938 15	32938 15
30538 17	32938 17	32938 17
30538 19	32938 19	32938 19
30539 70	32939 70	32939 70
30539 73	32939 73	32939 73
30539 75	32939 75	32939 75
30539 77	32939 77	32939 77
30539 79	32939 79	32939 79
30539 81	32939 81	32939 81
30611 00	3069A 00	3069A 11
30612 00	3069A 00	3069A 12 3069A 15
30613 00	3069A 00	3069A 13 3069A 14 3069A 16
30614 00	3069B 00	3069B 11
30615 00	3069B 00	3069B 12 3069B 13 3069B 14 3069B19
30616 00	3069B 00	3069B 21
30617 00	3069B 00	3069B 29
30697 77	30697 77	30697 11 30697 78
3069C 12	35558 72	35557 72
3069C 30	35558 76	35557 76
3069D 20	3069D 20	3069D 17 3069D 19
3069D 42	3069D 42	3069D 55 3069D 58
3069E 20	30310 00	30310 00
30810 10	30792 11	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt 30792 50 pt 30792 60 pt 30792 70 pt
30810 20	30792 12	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt 30792 50 pt 30792 60 pt 30792 70 pt
30810 30	30792 13	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt 30792 50 pt 30792 60 pt 30792 70 pt
30810 40	30792 14	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt 30792 50 pt 30792 60 pt 30792 70 pt
30810 50	30792 19	30792 10 pt 30792 20 pt 30792 30 pt 30792 40 pt 30792 50 pt 30792 60 pt 30792 70 pt
30820 10 30820 20 30820 30 30820 40 30820 50 30820 60 30820 70 30820 80 30820 90	30796 01 30796 02 30796 03 30796 04 30796 05 30796 06 30796 07 30796 08 30796 19	3079K 80
30830 11 30830 13 30830 19	30793 01 30793 03 30793 09	3079K 90
30840 11	30794 21	30794 21
30840 12	30794 22	30794 22
30840 13	30794 23	30794 23
30840 14	30794 24	30794 24
30840 15	30794 25	30794 25
30840 19	30794 26	30794 26
30850 00	30795 00	30795 00
30861 00	30797 41	30797 41
30862 10 30862 20 30862 90	30797 51 30797 53 30797 59	30797 42
30863 10 30863 90	30797 61 30797 69	30797 44
30864 10 30864 20 30864 30 30864 90	30797 71 30797 73 30797 75 30797 79	30797 45
30865 10 30865 20 30865 30 30865 40 30865 90	30797 81 30797 83 30797 85 30797 86 30797 89	30797 46
30866 10	30797 43	30797 43
30866 90	30797 47	30797 47
30870 12 30870 13	30791 01 30791 02	3079K 99
30880 00	3079F 20	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30891 01	3079C 11	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30891 03	3079C 13	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30891 09	3079C 19	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30892 10	3079D 31	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
30892 20	3079D 33	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt
30892 20—Con.	3079D 33—Con.	3079J 61 pt —Con. 3079J 66 pt 3079K 93 pt
30892 30	3079D 35	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
30892 90	3079D 39	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 93 pt
30893 00	3079F 22	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 01	30798 01	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 02	30798 02	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 03	30798 03	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 04	30798 04	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 05	30798 05	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 06	30798 06	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 07	30798 07	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30894 09	30798 09	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30895 01	30799 01	3079J 61 pt

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1987 published	1987 collected	1982 published
30895 01—Con.	30799 01—Con.	3079J 61 pt —Con. 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt
30895 02	30799 02	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt
30895 03	30799 03	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt
30896 11	3079A 11	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 12	3079A 12	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 13	3079A 13	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 14	3079A 14	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 15	3079A 15	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 16	3079A 16	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 17	3079A 17	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 18	3079A 18	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 19	3079A 19	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 21	3079A 20	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 22	3079A 21	3079J 61 pt 3079J 62 pt
30896 22—Con.	3079A 21—Con.	3079J 61 pt —Con. 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 23	3079A 23	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 24	3079A 25	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 25	3079A 27	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 26	3079A 28	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30896 27	2499A 94 3079A 29	2499A 94 3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 99 pt
30897 01	3079F 25	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 95 pt
30897 09	3079F 27	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 95 pt
30898 01	3079B 21	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 02	3079B 22	3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 03	3079B 23	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 04	3079B 24	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 05	3079B 25	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt
30898 05—Con.	3079B 25—Con.	3079J 61 pt —Con. 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 06	3079B 26	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 07	3079B 27	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30898 08	3079B 28	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3179K 99
30898 09	3079B 29	3079J 61 pt 3079J 62 pt 3079J 63 pt 3079J 64 pt 3079J 65 pt 3079J 66 pt 3079K 94 pt 3079K 99 pt
30899 00	3079F 31	3079K 88
3089A 11	3079F 41	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt
3089A 12	3079F 43	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt
3089A 14	3079F 47	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt
3089A 18	3079F 49	3079K 93 pt 3079K 94 pt 3079K 95 pt 3079K 99 pt
32295 00	32295 00	32291 00 pt
32296 00	32296 00	32292 00 pt
32297 00	32297 00	32294 00 pt
32298 00	32298 00	32291 00 pt 32292 00 pt 32294 00 pt
32311 00 32312 00	32311 00 32312 00	32317 00
32620 15	32620 15	32620 14 32620 52 pt
32620 19	32620 19	32620 18 32620 52 pt
32630 15	32630 15	32630 14 32630 52 pt
32630 19	32630 19	32630 18 32630 52 pt
32752 11	32752 11	32752 00
32917 23	32917 23	32917 22 32917 24
32917 40	32917 40	32917 26 32917 28 32917 39
32927 14	32927 14	32928 15 32928 17
32927 15	32927 15	32929 11 32929 21
32927 31	32927 31	32929 31
32927 33	32927 33	32929 33
32927 34	32927 34	32929 34
32927 36	32927 36	32929 36
32927 41	32927 41	32929 41
32927 77	32927 77	32929 77
32927 78	32927 78	32929 51 32929 73 32929 75
32927 98	32927 98	32928 13 32929 98
32961 11	32961 11	32963 11 32965 11
32961 31	32961 31	32963 31 32965 31
32961 35	32961 35	32963 35 32965 35
32961 38	32961 38	32963 38 32965 38
32961 51	32961 51	32963 51 32965 51
32961 61	32961 61	32963 61 32965 61
32961 98	32961 98	32963 98 32965 98
32962 31	32962 31	32964 31 32966 31
32962 34	32962 34	32964 34 32966 34
32962 36	32962 36	32964 36 32966 36
32962 45	32962 45	32964 45 32966 45
32962 51	32962 51	32964 51 32966 51
32962 61	32962 61	32964 61 32966 61
32962 83	32962 83	32964 83 32966 83
32962 98	32962 98	32964 98 32966 98
33121 98	33121 98	33121 79 33121 85 33121 98
3312A 11 3312A 23 3312A 25 3312A 27	3312A 11 3312A 23 3312A 25 3312A 27	3312A 00
3312B 61 3312B 63 3312B 65 3312B 67	3312B 61 3312B 63 3312B 65 3312B 67	3312B 00
33151 22 33151 23	33151 22 33151 23	33151 21
33152 01	33152 01	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 03	33152 03	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 17 pt

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1987 published	1987 collected	1982 published
33152 03—Con.	33152 03—Con.	33152 11 pt —Con. 34967 19 pt
33152 05	33152 05	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 07	33152 07	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 09	33152 09	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 10	33152 10	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 12	33152 12	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 14	33152 14	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 16	33152 16	33152 11 pt 33152 13 pt 33152 17 pt 33152 19 pt 34967 11 pt 34967 13 pt 34967 17 pt 34967 19 pt
33152 22	33152 22	33152 33 pt 34967 23 pt
33152 23	33152 23	33152 23 34967 19 pt
33152 25	33152 25	33152 25 34967 21
33152 30	33152 30	33152 33 pt 34967 23 pt
33156 15 33156 17	33156 15 33156 17	33156 13
33156 22 33156 24	33156 22 33156 24	33156 21
33157 21	33157 21	33157 31 pt 33157 61 pt 33157 71 pt
33157 22	33157 22	33157 31 pt 33157 61 pt 33157 71 pt
33157 23	33157 23	33157 31 pt 33157 61 pt 33157 71 pt
33157 41	33157 41	33157 31 pt 33157 61 pt 33157 71 pt
33157 42	33157 42	33157 31 pt 33157 61 pt
33157 42—Con.	33157 42—Con.	33157 31 pt —Con. 33157 71 pt
33157 43	33157 43	33157 31 pt 33157 61 pt 33157 71 pt
33159 44 33159 45 33159 48	33159 44 33159 45 33159 48	33159 49
33159 99	33159 99	33159 77 33159 98
33211 21	33211 21	33211 22 pt 33211 24 pt 33211 27 pt 33211 30 pt
33211 23	33211 23	33211 22 pt 33211 24 pt 33211 27 pt 33211 30 pt
33211 25	33211 25	33211 33 pt 33211 36 pt 33211 39 pt 33211 42 pt
33211 26	33211 26	33211 33 pt 33211 36 pt 33211 39 pt 33211 42 pt
33217 31	33217 31	33217 32 pt 33217 34 pt 33217 37 pt 33217 40 pt
33217 33	33217 33	33217 32 pt 33217 34 pt 33217 37 pt 33217 40 pt
33217 35	33217 35	33217 43 pt 33217 46 pt 33217 49 pt 33217 52 pt
33217 36	33217 36	33217 43 pt 33217 46 pt 33217 49 pt 33217 52 pt
33252 11	33252 11	33252 12 33252 13
33391 00	33331 00	33331 00
33392 31	33334 31	33334 31
33392 37	33334 37	33334 35 pt
33392 39	33334 39	33334 38 pt
33392 41	33334 41	33334 41
33392 43	33334 43	33334 45 pt
33392 49	33334 49	33334 48 pt
33392 51	33334 51	33334 35 pt 33334 38 pt 33334 45 pt 33334 48 pt
33392 55	33334 55	33334 55
33398 01	33321 00	33321 00
33398 05	33323 00	33323 00
33398 73	33398 73	33399 85
33398 99	33398 99	33398 23 33398 98 33399 61
33416 99	33416 99	33416 51 33416 98
33542 61	33542 61	33542 51 pt 33542 53 pt
33542 63	33542 63	33542 51 pt 33542 53 pt
33561 66	33561 66	33569 92
33561 66—Con. 33562 78 33563 91 33569 91	33561 66—Con. 33562 78 33563 91 33569 91	33569 92—Con.
33630 00	33611 00	33611 00
33640 11	33620 42	33620 42
33640 21	33691 51	33691 51
33640 31	33692 31	33692 31
33640 41	33693 71	33693 71
33640 51	33693 91	33693 91
33650 11	33612 11	33612 11
33650 31	33612 31	33612 31
33650 51	33612 51	33612 51
33650 61	33612 61	33612 61
33650 73	33612 73	33612 73
33660 20	33620 20	33620 20
33660 21	33620 21	33620 21
33660 22	33620 22	33620 22
33660 23	33620 23	33620 23
33660 24	33620 24	33620 24
33660 25	33620 25	33620 25
33660 31	33620 31	33620 31
33660 41	33620 52	33620 61 pt
33660 51	33620 51	33620 51
33660 61	33620 61 pt	33620 61 pt
33660 72	33620 72	33620 72
33690 11	33691 61	33691 61
33690 15	33692 11	33692 11
33690 21	33692 33	33692 33
33690 25	33692 41	33692 41
33690 91 33690 98	33693 94 33693 99	33693 99
33991 91 33991 98	33991 91 33991 98	33991 99
34234 11	34234 11	34232 31
34234 22	34234 22	34232 83
34234 33	34234 33	34232 85
34234 44 34234 98	34234 44 34234 98	34232 99
34235 11	34235 11	34232 53
34235 12	34235 12	34232 54
34235 21	34235 21	34232 56
34235 22	34235 22	34232 58
34235 31	34235 31 35533 81	34232 99 pt 35531 85 pt 35532 81 pt
34235 33	34235 33 35533 83	34232 99 pt 35531 85 pt 35532 81 pt
34235 39	34235 39 35533 84	34232 99 pt 35531 85 pt 35532 81 pt
34236 11	34236 11	34233 11
34236 21	34236 21	34233 21
34236 31	34236 31	34233 31
34236 41	34236 41	34233 41
34236 81	34236 81	34238 81
34236 99	34236 99	34233 99
34292 12 34298 99	34292 12 34298 99	34298 98
34320 01 34320 03	34320 01 34320 03	34320 04
34320 05 34320 07	34320 05 34320 07	34320 06
34320 09 34320 11	34320 09 34320 11	34320 08
34320 14 34320 25 34320 35	34320 14 34320 25 34320 35	34320 98
34320 47 34320 48	34320 47 34320 48	34320 79
34320 67 34320 69	34320 67 34320 69	34320 65
34320 71 34320 74 34320 75	34320 71 34320 74 34320 75	34320 98
34320 76 34320 78	34320 76 34320 78	34320 77
34320 80 34320 82	34320 80 34320 82	34320 55
34320 84 34320 86	34320 84 34320 86	34320 56
34320 87	34320 87	34320 98 pt
34320 90 34320 91	34320 90 34320 91	34320 40
34320 92 34320 93	34320 92 34320 93	34320 42
34320 94 34320 95	34320 94 34320 95	34320 43
34320 96 34320 97	34320 96 34320 97	34320 44
34320 99	34320 99	34320 98 pt
34432 44	34432 44	34432 45
34432 46 34432 48	34432 46 34432 48	34432 47
34432 52 34432 54 34432 56 34432 98	34432 52 34432 54 34432 56 34432 98	34432 99
34433 13	34433 13	34433 12 34433 14 34433 48 pt
34433 17	34433 17	34433 16 34433 18 34433 48 pt
34433 22	34433 22	34433 21 34433 23 34433 48 pt
34433 32	34433 32	34433 31 34433 33 34433 48 pt
34433 38	34433 38	34433 45
34433 39 34433 49 34433 50	34433 39 34433 49 34433 50	34433 48 pt
34434 13	34434 13	34434 12 pt
34434 15	34434 15	34434 18 pt

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1987 published	1987 collected	1982 published
34434 17	34434 17	34434 12 pt
34434 19	34434 19	34434 18 pt
34435 21 34435 23	34435 21 34435 23	34435 20
34435 31 34435 33	34435 31 34435 33	34435 35
34435 37 34435 39	34435 37 34435 39	34435 38
34438 03 34438 05	34438 03 34438 05	34438 04
34438 14 34438 16	34438 14 34438 16	34438 15
34438 17 34438 19	34438 17 34438 19	34438 18
34439 15 34439 17 34439 19	34439 15 34439 17 34439 19	34439 21
34439 31 34439 32 34439 33 34439 34	34439 31 34439 32 34439 33 34439 34	34439 30
34439 51 34439 53	34439 51 34439 53	34439 56
34441 21	34441 21	34446 37
34441 23	34441 23	34446 36
34441 27	34441 27	34446 34
34441 29	34441 29	34446 32
34443 11 34443 13	34443 11 34443 13	34446 21
34443 21 34443 23	34443 21 34443 23	34446 25
34447 21	34447 21	34446 47
34447 25	34447 25	34446 46
34447 31	34447 31	34446 11
34447 41	34447 41	34446 51
34448 11	34448 11	34446 62 pt
34448 13 34448 19	34448 13 34448 19	34446 64 pt
34449 31	34449 31	34446 15
34449 41	34449 41	34446 62 pt 34446 64 pt
34449 53	34449 53	34446 44
34449 55	34449 55	34446 42
34449 62	34449 62	34446 62 pt
34449 65	34449 65	34446 64 pt
34449 98	34449 98	34446 98
34461 10	34461 10	34460 07
34461 12	34461 12	34460 09
34461 15	34461 15	34460 12
34461 17	34461 17	34460 17
34462 10	34462 10	34460 31
34462 12	34462 12	34460 36
34462 22	34462 22	34460 22
34462 26	34462 26	34460 51
34463 10	34463 10	34460 41
34463 12	34463 12	34460 46
34463 20 34463 22	34463 20 34463 22	34460 49
34464 10	34464 10	34460 54 pt 34460 56 pt
34464 13	34464 13	34460 54 pt 34460 56 pt
34464 16	34464 16	34460 54 pt 34460 56 pt
34464 18	34464 18	34460 54 pt 34460 56 pt
34465 10	34465 10	34460 54 pt
34465 12	34465 12	34460 56 pt
34465 30	34465 30	34460 62
34482 11	34482 11	34482 17 34482 27
34625 11 34625 13 34625 15 34625 17	34625 11 34625 13 34625 15 34625 17	34625 00
34626 11 34626 13 34626 15 34626 17	34626 11 34626 13 34626 15 34626 17	34626 00
34627 11 34627 13 34627 15 34627 17	34627 11 34627 13 34627 15 34627 17	34627 00
34628 11 34628 13 34628 15 34628 17	34628 11 34628 13 34628 15 34628 17	34628 00
34692 20 34692 88 34692 98	34692 20 34692 88 34692 98	34692 99
34696 00 34699 98	34696 00 34699 98	34699 99
34790 10 34790 11 34790 21	34790 10 34790 11 34790 21	34790 19
34790 73 34790 75	34790 73 34790 75	34790 71
34911 11	3494A 11	3494A 11
34911 21	3494A 12	3494A 12
34911 23	3494A 13	3494A 13
34911 34	3494A 14	3494A 14
34911 38	3494A 15	3494A 15
34911 43	3494A 17	3494A 17
34911 52	3494A 19	3494A 19
34912 01	3494A 21	3494A 21
34912 11	3494A 22	3494A 22
34912 21	3494A 23	3494A 23
34912 23	3494A 24	3494A 24
34912 31	3494A 25	3494A 25
34912 35	3494A 26	3494A 26
34912 41	3494A 27	3494A 27
34912 43	3494A 29	3494A 29
34913 11	3494A 39	3494A 39
34913 23	3494A 43	3494A 43
34913 35	3494A 45	3494A 45
34913 47	3494A 46	3494A 46
34913 59	3494A 47	3494A 47
34913 61	3494A 49	3494A 49
34914 11	3494A 51	3494A 51
34914 13	3494A 52	3494A 52
34914 15	3494A 53	3494A 53
34914 17	3494A 54	3494A 54
34914 21	3494A 55	3494A 55
34914 23	3494A 56	3494A 56
34914 25	3494A 57	3494A 57
34914 31	3494A 58	3494A 58
34914 61	3494A 59	3494A 59
34915 11	3494A 61	3494A 61
34915 23	3494A 63	3494A 63
34915 35	3494A 65	3494A 65
34915 47	3494A 67	3494A 67
34915 61	3494A 69	3494A 69
34916 11	3494A 31	3494A 31
34916 23	3494A 32	3494A 32
34916 31	3494A 33	3494A 33
34916 33	3494A 34	3494A 34
34916 41	3494A 35	3494A 35
34916 53	3494A 36	3494A 36
34916 65	3494A 38	3494A 38
34916 77	3494A 71	3494A 71
34916 79	3494A 75	3494A 75
34916 98	3494A 98	3494A 98
34917 11	34949 11	34949 11
34917 13	34949 13	34949 13
34917 15	34949 15	34949 15
34917 27	34949 27	34949 21 34949 23 34949 25
34917 31	34949 31	34949 31
34917 39	34949 39	34949 39
34917 98	34949 98	34949 98
34918 00	34947 00	34947 00
34919 00	34948 00	34948 00
34921 00	3494B 00	3494B 00
34922 00	3494C 00	3494C 00
34923 00	3494D 00	3494D 00
34924 00	3494E 00	3494E 00
34925 00	3494F 00	3494F 00
34926 00	3494G 00	3494G 00
34927 00	3494H 00	3494H 00
34931 57	34931 57	34931 56 34931 58
34931 99	34931 99	34931 63 34931 98
34932 10 34932 20	34932 10 34932 20	34932 00
34944 21	34944 21	34944 11
34944 31 34944 41 34944 51 34944 99	34944 31 34944 41 34944 51 34944 99	34944 19
34945 12 34945 14 34945 16 34945 17 34945 99	34945 12 34945 14 34945 16 34945 17 34945 99	34945 98
34961 22 34961 31	34961 22 34961 31	34961 21
34964 41	34964 41	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34964 43	34964 43	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34964 45	34964 45	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34964 51	34964 51	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34964 53	34964 53	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34964 55	34964 55	34964 31 pt 34964 61 pt 34964 71 pt 34964 99 pt
34966 23 34966 25	34966 23 34966 25	34966 13
34966 27 34966 29	34966 27 34966 29	34966 21
34968 45 34968 46 34968 47	34968 45 34968 46 34968 47	34968 49
34968 81 34968 83 34968 85	34968 81 34968 83 34968 85	34968 98
34992 13	34992 13	34992 12 34992 19
34995 21	34995 21	34995 13 34995 15
34995 31 34995 39	34995 31 34995 39	34995 19
34998 25 34998 99	34998 25 34998 99	34998 98
35111 01 35111 02	35111 01 35111 02	35111 00
35112 00	35112 00	35112 00 pt
35112 21	35112 21	35112 01 pt 35112 15 35112 16
35112 22	35112 22	35112 01 pt 35112 17
35112 23	35112 23	35112 08 35112 18
35112 24	35112 24	35112 09 35112 19

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1987 published	1987 collected	1982 published
35112 74	35112 74	35112 75 pt
35112 76	35112 76	35112 75 pt 35112 77
35112 79 35112 83	35112 79 35112 83	35112 00 pt
35199 01	35199 01	35199 98 pt
35199 33	35199 26	35199 26
35199 41 35199 42	35199 41 35199 42	35199 03
35199 43 35199 44	35199 43 35199 44	35199 04
35199 45 35199 46	35199 45 35199 46	35199 05
35199 47	35199 47	35199 06 pt 35199 07 pt
35199 48	35199 48	35199 06 pt 35199 07 pt
35199 51 35199 52	35199 51 35199 52	35199 14
35199 53 35199 54	35199 53 35199 54	35199 15
35199 55 35199 56	35199 55 35199 56	35199 16
35199 57 35199 58	35199 57 35199 58	35199 17
35199 59 35199 60	35199 59 35199 60	35199 18
35199 61 35199 62	35199 61 35199 62	35199 19
35199 91	35199 91	35199 22 pt 35199 23 pt 35199 28 pt 35199 29 pt 35199 98 pt
35199 92	35199 92	35199 22 pt 35199 23 pt 35199 28 pt 35199 29 pt 35199 98 pt
35239 26	35239 26	35239 21 35239 25
35239 31	35239 31	35239 01 35239 02 35239 03 35239 04 35239 05 35239 06 35239 07 35239 08 35239 09 35239 11 35239 12 35239 19 35239 30
35239 53	35239 53	35239 50 35239 51
3523C 00	3523C 00	35234 00 pt 35237 00 35238 00 pt
3523E 00	3523E 00	35234 00 pt 35238 00 pt
3523F 00	3523F 00	3523A 00 3523B 00
35246 00	35246 00	35243 00 35245 00
3531A 00	3531A 00	35311 00
3531B 00	3531B 00	35312 00
3531C 00	3531C 00	35317 10 35317 20 35317 30
3531E 00	3531E 00	35314 00 pt
3531F 00	3531F 00	35316 00
3531G 00	3531G 00	35318 00 pt
3531H 00	3531H 00	35313 00 pt 35318 00 pt 35319 85
3531K 06	3531K 06	35319 06
3531K 07	3531K 07	35319 07
3531K 11	3531K 11	35319 11
3531K 20	3531K 20	35319 20
3531K 21	3531K 21	35319 21
3531K 22 3531K 24	3531K 22 3531K 24	35319 23
3531K 25	3531K 25	35319 25
3531K 27	3531K 27	35319 27
3531K 53 3531K 55	3531K 53 3531K 55	35319 52
3531K 61	35363 36	35361 36
3531K 70	3531K 70	35319 70
3531K 74	3531K 74	35319 72 35319 73
3531K 77	3531K 77	35319 75 35319 76
3531K 82	3531K 82	35319 82
3531K 90	3531K 40 35373 90	35319 41 35371 91 35371 93
3531K 97	3531K 97	35319 97
3531M 01	3531M 01	35313 00 pt
3531M 03	3531M 03	35314 00 pt
3531M 05	3531M 05	35319 84 pt 35319 86 pt
3531M 07	3531M 07	35319 84 pt 35319 86 pt
3531M 09	3531M 09	35319 84 pt 35319 86 pt
3531M 15	3531M 19 35374 15	35319 84 pt 35319 86 pt 35372 85 pt
35329 33	35329 33	35329 31 pt 35329 35 pt
35329 34	35329 34	35329 31 pt 35329 35 pt
35329 37 35329 38 35329 41 35329 43	35329 37 35329 38 35329 41 35329 43	35329 39
35329 71 35329 73 35329 75	35329 71 35329 73 35329 75	35329 79
35337 11	35337 11	35331 11
35337 12	35337 12	35331 12
35337 14	35337 14	35331 14
35337 15	35337 15	35331 15
35337 16	35337 16	35331 16
35337 17	35337 17	35331 17
35337 21	35337 21	35331 21
35337 22 35337 23	35337 22 35337 23	35331 41
35337 24 35337 25	35337 24 35337 25	35331 46
35337 26 35337 27	35337 26 35337 27	35331 43
35337 44	35337 44	35331 44
35337 45	35337 45	35331 45
35337 47	35337 47	35331 47
35337 48	35337 48	35331 48
35337 59	35337 59	35331 59
35337 61	35337 61	35332 61 pt
35338 31	35338 31	35332 31
35338 51	35338 51	35332 51
35338 55	35338 55	35332 55
35338 98	35338 98	35332 98
35338 99	35338 99	35332 61 pt
35339 12	35339 12	35333 12
35339 13	35339 13	35333 13
35339 14	35339 14	35333 14
35339 19	35339 19	35333 19
35339 21	35339 21	35333 21
35339 53	35339 53	35333 53
35339 55	35339 55	35333 55
35339 57	35339 57	35333 57
35339 61	35339 61	35333 61
35339 65	35339 65	35333 65
35339 71	35339 71	35333 71
35339 82	35339 82	35333 82
35339 98	35339 98	35333 98
3533A 10	3533A 10	35335 10
3533A 78	3533A 78	35335 78
3533B 21	3533B 21	35336 21
3533B 32 3533B 34	3533B 32 3533B 34	35336 31
35363 01 35363 02 35363 03	35363 01 35363 02 35363 03	35361 11
35363 13	35363 13	35361 13
35363 15	35363 15	35361 14
35363 16	35363 16	35361 16
35363 32	35363 32	35361 33 35361 39 pt
35363 34	35363 34	35361 35 35361 39 pt
35363 37 35363 38	35363 37 35363 38	35361 39 pt
35363 45	35363 45	35361 45
35364 01	35364 01	35362 07 35362 15 pt
35364 02	35364 02	35362 08 35362 15 pt
35364 03	35364 03	35362 09 35362 15 pt
35364 04	35364 04	35362 11 35362 15 pt
35364 05	35364 05	35362 13 35362 15 pt
35364 06	35364 06	35362 14 35362 15 pt
35364 17	35364 17	35362 55 pt
35364 52	35364 52	35362 52
35364 54	35364 54	35362 55 pt
35373 01 35373 02	35373 01 35373 02	35371 23 pt
35373 03	35373 03	35371 11 pt
35373 05	35373 05	35371 36 pt 35371 37 pt 35371 38 pt
35373 06	35373 06	35371 36 pt 35371 37 pt 35371 38 pt
35373 08	35373 08	35371 11 pt
35373 12	35373 12	35371 61
35373 15	35373 15	35371 23 pt 35371 41 pt
35373 16	35373 16	35371 11 pt
35373 17	35373 17	35371 36 pt 35371 37 pt 35371 38 pt 35371 41 pt
35373 18	35373 18	35371 11 pt
35373 19	35373 19	35371 65
35373 21	35373 21	35371 55
35373 25	35373 25	35371 99 pt
35373 26	35373 26	35371 75
35373 28	35373 28	35371 81
35373 29	35373 29	35371 83
35373 31	35373 31	35371 71
35373 32	35373 32	35371 85
35373 35	35364 41	35362 41
35373 39	35373 39	35371 48 35371 99 pt
35374 11	35374 11	35372 11
35374 17	35364 57	35362 57
35374 19	35374 19	35372 85 pt
35419 21 35419 22 35419 23 35419 24 35419 25 35419 26	35419 21 35419 22 35419 23 35419 24 35419 25 35419 26	35419 41
3541D 00	3541D 00	35411 00 35412 00
35421 00	35421 00	35421 10 35421 20
35424 01 35424 02	35424 01 35424 02	35424 11
35424 03 35424 04 35424 05	35424 03 35424 04 35424 05	35424 75
35430 11	35650 11	35650 11

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1987 published	1987 collected	1982 published
35430 98	35650 98	35650 98
35441 23 35441 25	35441 23 35441 25	35441 29
35441 42 35441 44 35441 83 35441 89	35441 42 35441 44 35441 83 35441 89	35441 91
35442 15	35442 15	35442 21 35442 25 pt
35442 16	35442 16	35442 25 pt
35442 17 35442 18 35442 19 35442 23	35442 17 35442 18 35442 19 35442 23	35442 62 pt
35442 41 35442 42	35442 41 35442 42	35442 33
35442 45 35442 47 35442 67	35442 45 35442 47 35442 67	35442 62 pt
35451 53	35451 53	35451 43 35451 44
35451 54	35451 54	35451 48 35451 49
35454 12	35454 12	35453 12
35454 14	35454 14	35453 14
35454 17	35454 17	35453 17
35454 31	35454 31	35453 31
35454 37	35454 37	35453 37
35454 38	35454 38	35453 38
35454 41	35454 41	35453 41
35454 43	35454 43	35453 43
35454 45	35454 45	35453 45
35454 51	35454 51	35453 51
35454 59	35454 59	35453 59
35454 98	35454 98	35453 98
35455 11	35455 11	35452 11
35455 13	35455 13	35452 13
35455 15	35455 15	35452 15
35455 17	35455 17	35452 17
35455 21	35455 21	35452 21
35455 61	35455 61	35452 61
35455 65	35455 65	35452 65
35455 71	35455 71	35452 71
35455 81 35455 83	35455 81 35455 83	35452 99 pt
35455 91 35455 92	35455 91 35455 92	35452 92
35455 93	35455 93	35452 99 pt
35455 94	35455 94	35452 94
35455 95	35455 95	35452 95
35455 96 35455 97 35455 98	35455 96 35455 97 35455 98	35452 99 pt
35462 42 35462 44	35462 42 35462 44	35462 43
35462 47	35462 47	35462 45 35462 49
35462 72	35462 72	35462 73 35462 74 35462 75 35462 76 35462 77 35462 78
35463 12 35463 14	35463 12 35463 14	35462 19
35473 48 35473 51 35473 52	35473 48 35473 51 35473 52	35473 56
35481 01	36231 14	36231 14
35481 02	36231 16	36231 16
35481 03	36231 31	36231 31
35481 04	36231 32	36231 32
35481 05	36231 33	36231 33
35481 06	36231 35	36231 35
35481 07	36231 52	36231 52
35481 08	36231 53	36231 53
35481 09	36231 54	36231 54
35481 11	36231 56	36231 56
35481 12	36231 57	36231 57
35481 19	36231 59	36231 59
35482 01 35482 02	36232 01 36232 02	36232 41
35482 03	36232 11	36232 11
35482 04	36232 23	36232 23
35482 05	36232 25	36232 25
35482 06	36232 31	36232 31
35482 07	36232 43	36232 59 pt 36232 64 pt
35482 08	36232 45	36232 59 pt 36232 64 pt 36232 68 pt
35482 11	36232 52	36232 52
35482 12	36232 54	36232 54
35482 13	36232 55	36232 55
35482 14	36232 58	36232 58
35482 15	36232 62	36232 61 36232 65
35482 16	36232 66	36232 64 pt 36232 68 pt
35483 05	36233 13	36233 13
35483 06	36233 23	36233 23
35483 07	36233 31	36233 31
35483 08	36233 52	36233 52
35483 09	36233 61	36233 61
35483 11	36233 71	36233 71
35483 19	36233 81	36233 81
35484 01	35496 01	35496 01
35484 02	35496 05	35496 05
35484 03	35496 09	35496 09
35484 04	35496 15	35496 15
35484 05	35496 17	35496 17
35484 09	35496 19	35496 19
35485 01	35497 61	35497 61
35485 02	35497 65	35497 65
35485 03	35497 67	35497 67
35485 04	35497 73	35497 73
35485 05	35497 74	35497 83 35497 75
35485 07	35495 55	35495 55
35485 09	35497 81	35497 81
35492 13 35492 18	35492 13 35492 18	35492 19
35495 01 35495 02 35495 03	35495 01 35495 02 35495 03	35495 10
35495 92 35495 95	35495 92 35495 95	35495 98
35521 38	35521 38	35521 42 35521 47
35521 39	35521 39	35521 46 35521 48
35521 54 35521 56	35521 54 35521 56	35521 55
35521 68 35521 69	35521 68 35521 69	35521 67
35521 84 35521 85	35521 84 35521 85	35521 86
35522 79	35522 79	35522 72 35522 99
35533 11	35533 11	35531 11
35533 13	35533 13	35531 13
35533 15	35533 15	35531 15
35533 19	35533 19	35531 62
35533 21 35533 23	35533 21 35533 23	35531 73 pt
35533 25 35533 27	35533 25 35533 27	35531 75 pt
35533 29	35533 29	35531 98 pt
35533 31	35533 31	35531 73 pt
35533 33	35533 33	35531 75 pt
35533 35 35533 37	35533 35 35533 37	35531 98 pt
35533 39	35533 39	35531 17 35531 73 pt 35531 75 pt 35531 98 pt
35533 87	35533 87	35531 87
35534 01 35534 02 35534 03	35534 01 35534 02 35534 03	35532 21
35534 04 35534 05 35534 06 35534 07 35534 08 35534 09	35534 04 35534 05 35534 06 35534 07 35534 08 35534 09	35532 98
35534 11	35534 11	35532 81 pt
35543 01	35543 01	35541 11 35542 73 pt
35543 02	35543 02	35541 21 35541 27 35542 73 pt
35543 03	35543 03	35541 26 pt 35542 73 pt
35543 04	35543 04	35541 25 35542 73 pt
35543 05	35543 05	35541 26 pt 35542 73 pt
35543 09	35543 09	35541 31 35542 73 pt
35543 11	35543 11	35541 49 pt 35542 73 pt
35543 12	35543 12	35541 49 pt 35542 73 pt
35543 13	35543 13	35541 45 35542 73 pt
35543 14	35543 14	35541 49 pt 35542 73 pt
35543 15	35543 15	35541 41 35541 43 35541 49 pt 35542 73 pt
35543 21	35543 21	35541 59 pt 35542 73 pt
35543 22	35543 22	35541 51 35542 73 pt
35543 23	35543 23	35541 53 35542 73 pt
35543 24	35543 24	35541 54 pt 35541 59 pt 35542 73 pt
35543 25	35543 25	35541 54 pt 35541 59 pt 35542 73 pt
35543 26	35543 26	35541 56 35541 59 pt 35542 73 pt
35544 01	35544 01	35542 89
35544 02	35544 02	35542 83
35544 03 35544 04	35544 03 35544 04	35542 85
35544 05	35544 05	35542 87
35551 02	35551 02	35551 01 35551 03 35551 05 35551 08
35553 05	35553 05	35553 01 35553 02 35553 04
35553 08	35553 08	35553 11 35553 12
35553 09	35553 09	35553 45 35553 52 35553 57
35558 02 35558 09	35558 02 35558 09	35557 01
35558 69	35558 69	35557 69
35558 83	35558 83	35557 83
35558 85	35558 85	35557 85
35558 87	35558 87	35557 87
35558 89	35558 89	35557 89
35558 99	35558 99	35557 99
35561 02	35511 02	35511 41 pt 35511 99 pt
35561 05	35511 05	35511 73
35561 06	35511 06	35511 83

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1987 published	1987 collected	1982 published
35561 07	35511 07	35511 91
35561 08	35511 08	35511 99 pt
35561 09	35511 09	35511 41 pt
35561 11 35561 19 35561 21	35511 11 35511 19 35511 21	35511 99 pt
35562 11	35512 11	35512 11
35562 21	35512 21	35512 21
35562 31	35512 31	35512 31
35562 41	35512 41	35512 41
35562 51	35512 51	35512 51
35562 65	35512 65	35512 61 35512 92 pt
35562 71	35512 71	35512 71
35562 75	35512 75	35512 75
35562 85	35512 85	35512 92 pt
35562 91	35512 91	35512 87 35512 92 pt
35563 01	35513 01	35513 59 pt
35563 02	35513 02	35513 39
35563 03 35563 04	35513 03 35513 04	35513 59 pt
35563 05	35513 05	35513 23 pt 35513 59 pt
35563 06	35513 06	35513 52 35513 59 pt
35563 07	35513 07	35513 59 pt
35563 08	35513 08	35513 49
35563 09	35513 09	35513 59 pt
35563 11	35513 11	35513 13
35563 12	35513 12	35513 23 pt 35513 59 pt
35563 14	35513 14	35513 59 pt
35563 15	35513 15	35513 29 35513 59 pt
35563 21	35513 21	35513 83 pt
35591 01 35591 03 35591 05	35591 01 35591 03 35591 05	35591 00 pt
35591 07	35591 07 35698 33	35591 00 pt 35699 97 pt
35591 09 35591 11	35591 09 35591 11	35591 00 pt
35591 13	35591 13 35698 34	35591 00 pt 35699 97 pt
35591 15	35591 15	35591 00 pt
35592 01	35592 21	35592 21
35592 03	35592 33	35592 33
35592 05	35592 35	35592 35
35592 07	35592 54	35592 54
35592 09 35592 11	35592 09 35592 11	35592 98 pt
35592 15	35592 15	35592 41 35592 42 35592 98 pt
35592 19	35592 97	35592 97
35593 01	35593 11	35593 11
35593 03	35593 31	35593 31
35593 05	35593 32	35593 32
35593 07	35593 34	35593 34
35593 09	35593 35	35593 35
35593 11	35593 52	35593 52
35593 13	35593 13	35593 53 35593 54
35593 15	35593 61	35593 61
35593 17	35593 71	35593 71
35593 19	35593 72	35593 72
35593 21 35593 23 35593 25	35593 21 35593 23 35593 25	35593 79
35593 27 35593 28 35593 29	35593 27 35593 28 35593 29	35593 81
35594 01	35594 11	35594 11
35594 03	35594 31	35594 31
35594 05	35594 51	35594 51
35594 07	35594 71	35594 71
35594 09 35594 13 35594 15	35594 09 35594 13 35594 15	35594 79
35594 17 35594 19 35594 21	35594 17 35594 19 35594 21	35594 81
35596 01 35596 03 35596 05 35596 07 35596 09 35596 11 35596 13 35596 15 35596 17 35596 19	35596 01 35596 03 35596 05 35596 07 35596 09 35596 11 35596 13 35596 15 35596 17 35596 19	35595 95
35596 21 35596 23 35596 25 35596 27 35596 29 35596 31 35596 33 35596 35 35596 37 35596 39	35596 21 35596 23 35596 25 35596 27 35596 29 35596 31 35596 33 35596 35 35596 37 35596 39	
35596 41 35596 43 35596 45 35596 47 35596 49 35596 51	35596 41 35596 43 35596 45 35596 47 35596 49 35596 51	
35597 01	35494 01	35494 01
35597 02	35494 03	35494 03
35597 03	35494 05	35494 05
35597 04	35494 07	35494 07
35597 05	35494 09	35494 09
35597 09	35494 11	35494 17 35494 19 pt
35597 11	35494 13	35494 19 pt
35599 01 35599 03	35599 01 35599 03	35595 11
35599 05 35599 07	35599 05 35599 07	35595 21
35599 09 35599 11	35599 09 35599 11	35595 32
35599 13	35599 13	35595 41 pt 35595 98 pt
35599 15	35599 15	35595 41 pt 35595 98 pt
35599 17	35599 17	35595 41 pt 35595 98 pt
35599 19	35599 19	35595 41 pt 35595 98 pt
35599 22	35599 22	35595 41 pt 35595 98 pt
35599 25	35599 25	35595 41 pt 35595 98 pt
35599 27 35599 29	35599 27 35599 29	35595 41 pt
35599 31 35599 33	35599 31 35599 33	35595 45
35599 35 35599 37	35599 35 35599 37	35595 49
35599 39 35599 41	35599 39 35599 41	35595 43
35599 43 35599 45	35599 43 35599 45	35595 52
35599 47	35599 47	35595 85 pt
35599 49 35599 51	35599 49 35599 51	35595 98 pt
35599 53 35599 55	35599 53 35599 55	35595 73
35599 57 35599 59	35599 57 35599 59	35595 92
35599 61 35599 63	35599 61 35599 63	35595 96
35599 65	35599 65	35595 82 pt
35599 67	35599 67	35595 86 pt
35599 69	35599 69	35595 83 pt 35595 84 pt
35599 71	35599 71	35595 82 pt 35595 83 pt 35595 84 pt 35595 85 pt 35595 86 pt
35599 73 35599 75	35599 73 35599 75	35595 87
35599 77 35599 79	35599 77 35599 79	35595 94
35599 80 35599 81	35599 80 35599 81	35595 98 pt
35599 82	35599 82	35595 62 pt
35599 83	35599 83	35595 98 pt
35599 85	35599 85	35595 62 pt 35595 98 pt
35599 86 35599 87	35599 86 35599 87	35595 98 pt
35599 88	36362 74	36362 74
35599 89	36362 75	36362 75
35599 90	36362 85	36362 85
35599 92 35599 93 35599 94 35599 95 35599 96 35599 97	35599 92 35599 93 35599 94 35599 95 35599 96 35599 97	35595 98 pt
35599 99	35599 99	35595 88 35595 98 pt
35616 00	35616 00	3561C 00
35645 46 35645 47	35645 46 35645 47	35645 49
35646 10 35646 20	35646 10 35646 20	35646 00
35651 01	35514 15 35691 15	35514 15 35691 15
35651 02	35514 22 35691 22	35514 22 35691 22
35651 03	35514 26 35691 26	35514 26 35691 26
35651 04	35514 29 35691 29	35514 29 35691 29
35651 05	35514 30 35691 30	35514 30 35691 30
35651 06	35514 32 35691 32	35514 32 35691 32
35651 07	35514 33 35691 33	35514 33 35691 33
35651 08	35514 35 35691 35	35514 35 35691 35
35651 09	35514 41 35691 41	35514 41 35691 41
35651 11	35514 52 35691 52	35514 52 35691 52
35651 12	35514 53 35691 53	35514 53 35691 53
35651 13	35514 54 35691 54	35514 54 35691 54
35651 14	35514 55 35691 55	35514 55 35691 55
35651 15	35514 63 35691 63	35514 63 35691 63
35651 16	35514 71 35691 71	35514 71 35691 71
35651 17	35514 81 35691 81	35514 81 35691 81
35651 18	35514 82 35691 82	35514 82 35691 82
35651 19	35514 83 35691 83	35514 83 35691 83
35651 21	35514 84 35691 84	35514 84 35691 84 pt
35651 22	35514 11 35691 85	35513 67 35691 84 pt
35652 00	35514 91 35691 91	35513 83 pt 35514 91 35691 91
35674 01	35674 01	35674 11 pt
35674 02	35674 02	35674 17
35674 03	35674 03	35674 19 pt 35674 31 pt
35674 04	35674 04	35674 11 pt 35674 19 pt 35674 31 pt
35675 01	35675 01	35675 51
35675 02 35675 03	35675 02 35675 03	35675 59
35675 11 35675 12	35675 11 35675 12	35675 91
35676 00	35676 00	35672 00 pt
35676 01	35676 01	35672 11

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1987 published	1987 collected	1982 published
35676 02	35676 02	35672 21
35676 03	35676 03	35672 61
35676 04	35676 04	35672 00 pt
35676 05	35676 05	35672 41 pt
35676 06	35676 06	35672 00 pt
35676 17 35676 19	35676 17 35676 19	35672 41 pt
35681 11 35681 13	35681 11 35681 13	35681 15
35683 36 35683 93 35683 95	35683 36 35683 93 35683 95	35683 99 pt
35683 98	35683 98	35683 91 35683 99 pt
35692 00	35692 00	35694 00 35695 00 35696 00
35693 04	35693 04	35693 01 pt 35693 02 pt 35693 03 pt
35693 05	35693 05	35693 01 pt 35693 02 pt 35693 03 pt
35693 06	35693 06	35693 01 pt 35693 02 pt 35693 03 pt
35697 00	35697 00	35699 97 pt
35698 01 35698 02	35698 01 35698 02	35699 31
35698 03 35698 04	35698 03 35698 04	35699 32
35698 05 35698 06	35698 05 35698 06	35699 33
35698 07 35698 08	35698 07 35698 08	35699 35
35698 11 35698 12	35698 11 35698 12	35699 36
35698 13 35698 14	35698 13 35698 14	35699 41
35698 15 35698 16	35698 15 35698 16	35699 43
35698 17 35698 18	35698 17 35698 18	35699 45
35698 21 35698 22	35698 21 35698 22	35699 51
35698 23 35698 24	35698 23 35698 24	35699 61
35698 25 35698 26	35698 25 35698 26	35699 71
35698 27 35698 28	35698 27 35698 28	35699 73
35698 31 35698 32	35698 31 35698 32	35699 74
35698 35 35698 36 35698 48 35698 49	35698 35 35698 36 35698 48 35698 49	35699 97 pt
35711 00	35731 00 36629 43	35731 00 36629 00 pt
35712 00	35733 05	35734 20 35735 41
35721 00	35732 10	35732 00 pt
35722 00	35733 10	35734 30 pt 35735 51 pt
35751 00	35732 40 36612 10	35732 00 pt 36612 00 pt
35752 00	35733 40	35734 30 pt 35735 51 pt
35771 00	35732 30 35732 61	35732 00 pt
35772 00	35733 30 35733 60	35734 30 pt 35735 51 pt 35734 30 pt 35735 51 pt
35781 00	35743 00	35743 00
35782 00	35744 00	35744 00
35783 00	35745 00	35745 10 35745 31
3579A 00	3579A 00	3579A 20 3579A 40 3579A 41 3579A 44 3579A 50 3579A 55
35820 35 35820 36	35820 35 35820 36	35820 24
35856 00	35856 00	35856 11 35856 30
35859 05 35859 07	35859 05 35859 07	35859 09
3585C 00	3585A 10 3585A 20 36993 00	3585A 10 3585A 20 36993 00
3585D 10	3585B 10	3585B 10
3585D 20	3585B 20	3585B 20
3585D 30	3585B 30	3585B 30
3585D 40	3585B 40	3585B 40
3585D 50	3585B 50	3585B 50
3585D 60	3585B 60	3585B 60
3585D 70	3585B 70	3585B 70
3585D 80	3585B 72 36994 07	3585B 72 36994 07
35860 89	35860 89	35860 21 35860 41 35860 88
35892 03	35892 03	35892 01 pt
35892 04 35892 05	35892 04 35892 05	35892 02 pt
35892 06	35892 06	35892 01 pt 35892 02 pt
35892 07	35892 07	35892 93 pt
35892 26	35892 26	35892 25 35892 28
35892 27	35892 27	35892 93 pt
35892 43	35892 43	35892 61 35892 89 pt
35892 44	35892 44	35892 89 pt
35892 45 35892 76	35892 45 35892 76	35892 93 pt
35892 77 35892 78 35892 79	35892 77 35892 78 35892 79	35892 84
35892 80	35892 80	35892 93 pt
35892 85 35892 87 35892 88	35892 85 35892 87 35892 88	35892 86
35892 91	35892 91	35892 93 pt
35892 98	35892 98	35892 89 pt
35892 99	35892 99	35892 93 pt
35893 01 35893 02	35893 01 35893 02	35893 11
35893 08 35893 09	35893 08 35893 09	35893 98
35921 01	35921 01	35921 11
35921 02	35921 02	35921 13
35921 03	35921 03	35921 71
35921 05	35921 05	35921 72
35922 01	35922 01	35922 21
35922 02	35922 02	35922 23
35922 03	35922 03	35922 51
35922 04	35922 04	35922 53
35922 05	35922 05	35922 55
35922 06	35922 06	35922 57
35922 09	35922 09	35922 59
35923 01	35923 01	35923 61
35923 02	35923 02	35923 63
35931 00	35991 00	35996 00 35997 00
35932 00	35998 00	35998 00
35933 00	35999 00	35999 00
35941 10	35619 00	35617 00 35618 00
35941 20	35631 50	35631 40 pt
35942 10	3561D 00	3561A 00 3561B 00
35942 20	35631 60	35631 40 pt
35961 01	35761 01	35760 13
35961 03	35761 03	35760 15
35961 05	35761 05	35760 21
35961 07	35761 07	35760 23
35961 09	35761 09	35760 24
35961 11	35761 11	35760 26
35961 13	35761 13	35760 28
35961 15	35761 15	35760 22
35961 17	35761 17	35760 30
35962 01	35762 01	35760 32
35962 03	35762 03	35760 33
35962 05	35762 05	35760 36
35962 07	35762 07	35760 37 pt
35962 09	35762 09	35760 41
35962 11	35762 11	35760 45
35962 13	35762 13	35760 52
35962 15	35762 15	35760 53
35962 17 35962 19	35762 17 35762 19	35760 37 pt
35963 01	35763 01	35760 61
35963 03	35763 03	35760 62
35963 05	35763 05	35760 63
35963 09	35763 09	35760 84
36122 02 36122 04 36122 06 36122 14 36122 16 36122 19 36122 21 36122 23 36122 28 36122 29	36122 02 36122 04 36122 06 36122 14 36122 16 36122 19 36122 21 36122 23 36122 28 36122 29	36122 00
36122 32 36122 33 36122 37 36122 39 36122 41 36122 42 36122 43 36122 44	36122 32 36122 33 36122 37 36122 39 36122 41 36122 42 36122 43 36122 44	
36123 01 36123 02 36123 03 36123 04 36123 05 36123 06 36123 07 36123 11	36123 01 36123 02 36123 03 36123 04 36123 05 36123 06 36123 07 36123 11	36125 00 pt
36126 01 36126 02 36126 03 36126 04 36126 05 36126 09	36126 01 36126 02 36126 03 36126 04 36126 05 36126 09	36125 00 pt
36127 11 36127 31 36127 78	36127 11 36127 31 36127 78	36127 00
36249 94 36249 96	36249 94 36249 96	36249 98
36251 00	36138 10 36794 00	36138 00 pt 36794 00
36252 00	36221 00	36221 00
36253 00	36222 00	36222 00
36254 00	36138 20 36223 00	36138 00 pt 36223 00
36291 01	36291 11	36291 11
36291 03	36291 31	36291 31
36291 05	36291 05	36291 35 36291 98 pt
36291 09	36291 09	36291 98 pt
36293 01	36293 01	36293 13 36293 15
36293 02	36293 31	36293 31
36293 03 36293 04 36293 05 36293 09	36293 03 36293 04 36293 05 36293 09	36293 99
36311 10 36311 20	36311 10 36311 20	36311 00
36313 10 36313 20	36313 10 36313 20	36313 00
36314 10 36314 20	36314 10 36314 20	36314 00
36330 10	36330 10	36331 00 36333 11 36333 15 36333 71
36330 20	36330 20	36333 95
36349 20	36349 20	36349 13 36349 18 36349 88 36349 89

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1987 published	1987 collected	1982 published
36395 10	36361 21 36395 30	36361 21 36394 00 pt 36399 60
36395 20	36361 84 36395 40	36361 84 36394 00 pt 36399 91 36399 93
36411 00	36410 10	36410 20 36410 55 36410 63
36412 00	36994 22	36994 11 36994 21
36489 12	36489 12	36489 11 pt 36489 19 pt
36489 16	36489 16	36489 11 pt
36489 17	36489 17	36489 19 pt
36520 00	36520 00	36521 00 36521 19
36520 01	36520 01	36521 01 pt 36521 02 pt
36520 03	36520 03	36521 01 pt 36521 02 pt
36520 05	36520 05	36521 03 36521 04
36520 07 36520 09	36520 07 36520 09	36521 05
36520 11	36520 11	36521 12 36521 15
36520 19	36520 19	36521 11 36521 13 36521 14 36521 16
36613 00	35732 50 36612 20	35732 00 pt 36612 00 pt
36614 00	36612 40	36612 00 pt
36631 00	36621 00 36629 41	36621 00 36629 00 pt
36632 00	36622 00	36622 00
36691 00	36624 00	36624 00
36692 00	36626 00	36626 00
36693 00	36628 00	36628 00
36714 00	36714 00	36711 00 36712 00
36715 00	36799 10	36799 00 pt
36720 00	36797 00	36797 00
36799 20	36799 20 36629 42	36629 00 pt 36799 00 pt
36799 30	36799 30	36799 00 pt
36913 17	36913 17	36913 15 36913 16
36914 25	36914 25	36914 21 36914 29
36915 01	36915 01	36915 72 36915 75
36915 02	36915 02	36915 85
36920 01	36920 01	36920 10 pt 36920 70 pt 36920 82 pt
36920 03	36920 03	36920 70 pt 36920 82 pt
36920 04	36920 04	36920 70 pt 36920 82 pt
36920 05	36920 05	36920 10 pt 36920 70 pt
36920 05—Con.	36920 05—Con.	36920 10 pt —Con. 36920 82 pt 36920 92 pt
36920 07	36920 07	36920 10 pt 36920 70 pt 36920 82 pt 36920 92 pt
36920 09	36920 09	36920 95
36941 01	36941 01	36941 11
36941 02	36941 02	36941 16
36941 03	36941 03	36941 31
36941 04	36941 04	36941 35
36942 01	36942 01	36942 14 36942 28 pt
36942 02	36942 02	36942 28 pt
36942 03	36942 03	36942 27 36942 28 pt
36942 04	36942 04	36942 37 36942 41 36942 42
36943 01	36943 01	36943 11 36943 42 pt
36943 02	36943 02	36943 42 pt
36943 03	36943 03	36943 41 36943 42 pt
36947 04 36947 05	36947 04 36947 05	36947 03
36949 07	36949 07	36949 09 pt
36949 11	36949 11	36949 02
36949 12	36949 12	36949 03 36949 04
36949 13	36949 13	36949 05 36949 06
36949 19	36949 19	36949 09 pt
36950 00	35732 20 36792 00	35732 00 pt 36792 00
36991 00	36629 10 36629 45	36629 00 pt
36992 00	36629 20	36629 00 pt
36995 00	36629 30	36629 00 pt
36997 00	35497 65 36629 47 36629 50	35497 65 36629 00 pt
36998 01	36994 51	36994 51
36998 02	36994 71	36994 71
36998 03	36994 72	36994 96 pt
36998 04	36994 82	36994 82
36998 05	36994 83	36994 83
36998 06	36994 84	36994 84
36998 07	36994 85	36994 85
36998 19	36994 97	36994 81 36994 96 pt
37112 01	37112 01	37112 11 pt 37112 13 pt 37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37112 02	37112 02	37112 23 pt 37112 25 pt
37112 02—Con.	37112 02—Con.	37112 23 pt —Con. 37112 26 pt
37112 03	37112 03	37112 11 pt 37112 13 pt
37112 04	37112 04	37112 11 pt 37112 13 pt 37112 15 pt
37112 05	37112 05	37112 11 pt 37112 13 pt
37112 06	37112 06	37112 11 pt 37112 13 pt 37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37112 07	37112 07	37112 11 pt 37112 13 pt 37112 15 pt
37112 08	37112 08	37112 23 pt 37112 25 pt 37112 26 pt
37112 09	37112 09	37112 11 pt 37112 13 pt 37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37112 31	37112 31	37112 11 pt 37112 13 pt 37112 15 pt
37112 32	37112 32	37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37112 33	37112 33	37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37112 34	37112 34	37112 26 pt
37112 35	37112 35	37112 11 pt 37112 13 pt 37112 15 pt
37112 36	37112 36	37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37112 39	37112 39	37112 11 pt 37112 13 pt 37112 15 pt 37112 17 pt 37112 21 pt 37112 23 pt 37112 25 pt 37112 26 pt
37113 01	37113 01	37113 13 pt 37113 15 pt
37113 02	37113 02	37113 13 pt 37113 15 pt
37113 03	37113 21	37113 21
37131 01	37131 51	37131 51
37131 02	37131 02	37131 60 pt
37131 03	37131 03	37131 12 pt 37131 44 pt
37131 04	37131 04	37131 12 pt 37131 44 pt
37131 06	37131 58	37131 58
37131 07	37131 07	37131 60 pt
37131 11	37131 40	37131 40
37131 13	37131 13	37131 42 37131 46
37131 15	37131 48	37131 48
37131 16	37131 50	37131 50
37131 17	37131 52	37131 52
37131 21	37131 37	37131 37
37131 43	37131 30	37131 30
37131 49	37131 49	37131 12 pt 37131 25
37131 53	37131 33	37131 33
37131 55	37131 34	37131 34
37131 57	37131 54	37131 54
37131 61	37131 36	37131 36
37131 62	37131 38	37131 38
37131 63	37131 56	37131 56
37131 69	37131 69	37131 60 pt
37132 01	37132 79	37132 79
37132 02	37132 02	37132 71 37132 75
37132 03 37132 05 37132 06 37132 07 37132 08 37132 09 37132 15 37132 16 37132 17 37132 18 37132 19 37132 21	37132 03 37132 05 37132 06 37132 07 37132 08 37132 09 37132 15 37132 16 37132 17 37132 18 37132 19 37132 21	37132 98 pt
37132 25	37132 77	37132 77
37132 26 37132 27 37132 28 37132 29 37132 31	37132 26 37132 27 37132 28 37132 29 37132 31	37132 98 pt
37142 48	37142 48	37142 03 37142 04 37142 05 37142 22 37142 33 37142 37 37142 49
37144 09	37144 09	37144 11 37144 13
37146 03	37146 03	37146 01 37146 02
37146 49	37146 49	37146 19 37146 21 37146 39
37147 07	37147 07	37147 03 37147 09
37148 03	37148 03	37148 04 37148 05
37148 27	37148 27	37148 29 37148 31
37149 20	37149 20	37149 21 37149 29 pt
37149 39	37149 39	37149 14 37149 15 37149 18 37149 19 37149 24 37149 26 37149 29 pt

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1987 published	1987 collected	1982 published
3714A 01	3714A 01	37143 31
3714A 02	3714A 02	37143 21
3714A 03	3714A 03	37143 23
3714A 04	3714A 04	37143 26
3714A 05 3714A 06	3714A 05 3714A 06	37143 49 pt
3714A 07	3714A 07	37143 44
3714A 08	3714A 08	37143 49 pt
3714A 09	3714A 09	37143 46
3714A 10	3714A 10	37143 47
3714A 11	3714A 11	37143 48
3714A 12 3714A 13 3714A 19	3714A 12 3714A 13 3714A 19	37143 49 pt
37151 00	37151 00	37151 10 37151 50
37152 01 37152 02	37152 01 37152 02	37152 00
37211 00	37211 00	37211 21 37211 23 37211 28
37244 01 37244 02	37244 01 37244 02	37244 13
37244 05 37244 06	37244 05 37244 06	37244 53
37311 01	37311 01	37311 11 pt 37311 21
37311 02	37311 02	37311 11 pt 37311 31
37311 03	37311 03	37311 11 pt 37311 41
37311 04	37311 04	37311 11 pt 37311 51
37311 05	37311 05	37311 11 pt 37311 61
37311 06	37311 06	37311 81 pt
37311 07	37311 75	37311 75
37311 09	37311 09	37311 11 pt 37311 81 pt
37313 21	37313 21	37313 98 pt
37313 29	37313 29	37313 10 37313 12 37313 14 37313 98 pt
37316 01	37316 01	37316 13 37316 53
37316 02	37316 02	37316 19 37316 59
37322 01	37322 01	37322 03 37322 04 37322 06 37322 08
37322 02	37322 02	37322 11
37322 05 37322 07	37322 05 37322 07	37322 19 pt
37322 09	37322 09	37322 15
37322 11	37322 11	37322 19 pt
37322 13	37322 13	37322 17 37322 19 pt
37322 21	37322 21	37322 40 37322 42 37322 44
37322 21—Con.	37322 21—Con.	37322 40—Con. 37322 49
37322 23	37322 23	37322 47
37322 25	37322 25	37322 48
37322 27 37322 28	37322 27 37322 28	37322 55 pt
37322 29	37322 29	37322 53 37322 55 pt 37322 61
37323 03	37323 03	37323 11 pt 37323 30
37323 05	37323 05	37323 11 pt 37323 35
37323 07	37323 07	37323 11 pt 37323 50
37323 09	37323 09	37323 11 pt 37323 54
37323 13	37323 13	37323 11 pt 37323 56
37323 15	37323 15	37323 11 pt 37323 58
37323 17	37323 17	37323 11 pt 37323 70 37323 75
37323 19	37323 19	37323 00 pt
37324 01	37324 01	37324 10 37324 15
37324 03	37324 03	37324 18 pt 37324 20 pt 37324 25 pt
37324 05	37324 05	37324 18 pt 37324 20 pt 37324 25 pt
37324 07	37324 07	37324 18 pt 37324 20 pt 37324 25 pt
37324 09	37324 09	37324 18 pt 37324 20 pt 37324 25 pt
37327 01	37327 01	37327 22 37327 25 pt 37327 32 37327 35 pt
37327 03	37327 03	37327 25 pt 37327 28 pt 37327 35 pt 37327 38 pt
37327 05	37327 05	37327 28 pt 37327 38 pt
37327 07	37327 07	37327 28 pt 37327 38 pt
37327 09	37327 09	37327 28 pt 37327 38 pt
37327 11 37327 13 37327 15	37327 11 37327 13 37327 15	37327 41
37327 19	37327 19	37327 42 37327 49
37328 00	37328 00	37328 11 37328 21
37431 11	37431 72	37431 72
37431 12 37431 15 37431 17 37431 18	37431 12 37431 15 37431 17 37431 18	37431 79
37433 01	37433 41	37433 41
37433 02	37433 61	37433 61
37433 03	37433 62	37433 62
37433 04	37433 69	37433 69
37433 11	37433 71	37433 71
37433 12 37433 13 37433 14 37433 15	37433 12 37433 13 37433 14 37433 15	37433 79
37511 01	37511 11	37511 11
37511 02	37511 21	37511 21
37511 03	37511 31	37511 31
37511 04	37511 42	37511 42
37511 05	37511 44	37511 44
37511 06	37511 51	37511 51
37511 09	37511 59	37511 59
37511 10 37511 12 37511 13 37511 14 37511 15 37511 16 37511 19	37511 10 37511 12 37511 13 37511 14 37511 15 37511 16 37511 19	37511 71
37512 01	37512 01	37512 14 37512 17
37512 06 37512 07	37512 06 37512 07	37512 53
37612 01	37612 25	37612 25
37612 02	37612 02	37612 35 37612 45
37614 01	37614 13	37614 13
37614 02	37614 02	37614 15 37614 17
37615 01	37615 11	37615 11
37615 02	37615 13	37615 13
37615 03	37615 03	37615 15 37615 20
37922 61 37922 63 37922 69	37922 61 37922 63 37922 69	37922 59
37950 01	37950 01	37950 11 37950 15
37996 01	37996 30	37996 30
37996 02	37996 32	37996 32
37996 03	37996 34	37996 34
37996 04	37996 36	37996 36
37996 08 37996 09	37996 08 37996 09	37996 39
37999 01	37999 01	37994 92
37999 02	37999 02	37994 94
37999 03	37999 03	37998 82
37999 04	37999 04	37998 84
37999 05	37999 05	37998 80
37999 06	37999 06	37998 53
37999 19	37999 19	37998 35 37998 51 37998 82 37998 84 37998 86 37998 90
37999 21	37999 21	37998 88
38121 00	38111 00	38111 00
38122 00	38625 30 38629 44	38625 00 pt 38629 00 pt
38210 10	38112 00	38112 00
38210 20	38113 20	38113 00 pt
38244 00	38244 00	38244 11 38244 21 38244 31 38244 99
38260 00	38326 00	38326 00
38271 00	38324 00	38324 00
38272 00 38273 00	38325 30 38325 40	38325 00
38295 10	38293 00	38293 00
38295 20	38625 20	38625 00 pt
38296 00	38113 10	38113 00 pt
38411 42	38411 42	38411 41 38411 45 38411 46
38411 72	38411 72	38411 71 pt
38411 85	38411 85	38411 82 38411 83
38411 87	38411 87	38411 84 pt
38411 97	38411 97	38411 98 pt
38411 99	38411 99	38411 71 pt 38411 84 pt 38411 98 pt
38421 01	38421 01	38421 99 pt
38421 02	38421 02	38421 35 pt
38421 03	38421 03	38421 99 pt
38421 04	38421 04	38421 11 pt
38421 05	38421 41	38421 41
38421 06	38421 38	38421 38
38421 07	38421 71	38421 71
38421 08	38421 82	38421 82
38421 09	38421 81	38421 81
38421 10	38421 45	38421 45
38421 12 38421 13	38421 12 38421 13	38421 99 pt
38421 37	38421 37	38421 33 38421 34
38421 91	38421 91	38421 99 pt
38421 97	38421 97	38421 15 38421 99 pt
38421 98	38421 98	38421 11 pt 38421 35 pt 38421 99 pt
38423 21 38423 22 38423 23 38423 24	38423 21 38423 22 38423 23 38423 24	38423 31
38431 12 38431 13	38431 12 38431 13	38431 04
38440 00	38931 00	38931 00
38450 00	38933 00	38933 00
38511 18 38511 19	38511 18 38511 19	38511 17
38517 04 38517 05	38517 04 38517 05	38517 09

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published
38517 04—Con. 38517 06 38517 07 38517 10 38517 11	38517 04—Con. 38517 06 38517 07 38517 10 38517 11	38517 09—Con.
38611 11	38611 11	38611 12 38611 14
38611 69	38611 69	38611 67 38611 68
38611 91	38611 91	38611 81
38611 98	38611 98	38611 43 38611 99
38613 17	38613 17	38613 27 38613 46
38613 89	38613 89	38613 98
38613 97	38613 97	38613 61
38615 01	38615 01	38615 11 38615 17 38615 32 38615 37
38615 02	38615 02	38615 63
38615 03	38615 03	38615 73 38615 74
38615 04	38615 04	38615 75
38615 05	38615 05	38615 57 38615 64 38615 65 38615 76 38615 81
38619 00	38619 00	38619 41 38619 43 38619 45
38731 01	38731 01	38734 11 38734 12 38736 11
38731 02	38731 02	38734 22 pt 38736 13 pt
38731 03	38731 03	38734 21 38734 22 pt 38736 12 38736 13 pt
38731 05	38731 05	38736 31 38736 32 38736 33
38731 06	38731 06	38737 01
38731 07	38731 07	38737 02 38737 03
38731 11	38731 11	38737 19
38731 13	38731 13	38736 39
38732 01	38732 01	38732 10 38732 22
38732 02	38732 02	38732 14 38732 24
38732 03	38732 03	38732 16 38732 26
38732 09	38732 09	38732 18 38732 20 38732 29 38732 30
39113 11	39113 11	39112 11 pt
39113 21	39113 21	39112 21 pt
39113 31	39113 31	39112 31 pt
39113 41	39113 41	39112 41 pt
39113 98	39113 98	39112 98 pt
39114 11	39114 11	39112 11 pt
39114 21	39114 21	39112 21 pt
39114 31	39114 31	39112 31 pt
39114 41	39114 41	39112 41 pt
39114 51 39114 61 39114 71	39114 51 39114 61 39114 71	39112 98
39141 41 39141 43 39141 69	39141 41 39141 43 39141 69	39141 66
39142 35	39142 35	39142 34 39142 36
39142 41 39142 43	39142 41 39142 43	39142 61
39142 55	39142 55	39142 54 39142 56
39142 69	39142 69	39142 61 pt
39153 11	39153 11	39151 13 pt
39153 12	39153 12	39151 31 pt
39153 21 39153 31	39153 21 39153 31	39151 41 39151 51 pt
39154 00	39154 11	39151 13 pt 39151 31 pt 39151 51 pt
39314 24 39314 25	39314 24 39314 25	39314 23
39443 46	39443 46	39443 44 39443 45
39443 47 39443 98	39443 47 39443 98	39443 99
39447 16	36629 46	36629 00 pt
39493 01	39493 01	39494 62
39493 02	39493 02	39494 63
39495 05	39495 05	39495 99 pt
39495 72	39495 72	39495 78 39495 79
39495 81 39495 88 39495 89	39495 81 39495 88 39495 89	39495 99 pt
39495 92	39495 92	39495 90 pt
39495 93	39495 93	39495 91 pt
39495 96	39495 96	39495 90 pt 39495 91 pt
39495 98	39495 98	39495 99 pt
39496 01	39496 01	39494 65
39496 02	39496 02	39494 68
39496 03 39496 04	39496 03 39496 04	39494 70
39496 05	39496 05	39494 69
39496 06	39496 06	39494 70 pt
39523 00	39523 00	39521 00 39522 15
39524 13	39524 13	39522 13
39524 19	39524 19	39522 19
39610 65	39610 65	39610 72
39610 65—Con. 39610 71	39610 65—Con. 39610 71	39610 72—Con.
39610 93 39610 95	39610 93 39610 95	39610 91
39651 01	39630 11	39630 11
39651 09	39630 15	39630 15
39651 11	39630 41	39630 41
39651 19	39630 51	39630 51
39651 21	39630 61	39630 61
39651 29	39630 98	39630 98
39654 22	39641 22	39641 22
39654 23	39641 23	39641 23
39654 31	39641 31	39641 31
39654 33	39641 33	39641 33
39654 39	39641 39	39641 39
39656 20	39642 20	39642 20
39656 21	39642 21	39642 21
39656 32	39642 32	39642 32
39656 33	39642 33	39642 33
39656 51	39642 51	39642 51
39656 71	39642 71	39642 71
39656 81	39642 81	39642 81
39656 89	39642 89	39642 89
39991 51 39991 61 39991 69	39991 51 39991 61 39991 69	39991 67
39993 00	39993 00	39993 36 39993 61
39997 11 39997 51	39997 11 39997 51	39997 00
39998 13	39620 13	39620 13
39998 15	39620 15	39620 15
39998 17	39620 17	39620 17
39998 21	39620 21	39620 21

PUBLICATION PROGRAM

1987 CENSUS OF MANUFACTURES

Publications of the 1987 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

Preliminary Reports

Industry series—83 reports (MC87-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the U.S. and States are released in one report.

Final Reports

Industry series—83 reports (MC87-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries ("dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added by manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC87-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MSA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—7 reports (MC87-S-1 to -7)

Each of the seven reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, type of organization, water use in manufacturing, textile machinery in place, distribution of sales by class of customer, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC87-R-1)

The Numerical List of Manufactured and Mineral Products includes a description of the principal products and services published in the 1987 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC87-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and zip codes for each State. (This report is available only on magnetic tape and CD-ROM.)

Analytical Reports—3 reports (AR87-1 to -3)

Exports From Manufacturing Establishments (AR87-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR87-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Indexes of Production (AR87-3)

The indexes presented in this report are designed to measure the change in physical output of each manufacturing and mineral industry between 1982 and 1987.

MICROFICHE

Every final published report in the 1987 Census of Manufactures will be available on microfiche.

PUBLIC-USE COMPUTER TAPES AND COMPACT DISCS

Data from the final industry series, geographic area series, and the Location of Manufacturing Plants report will be available on public-use computer tapes and compact discs-read only memory (CD-ROM). These tapes will provide the same information found in the final reports. Computerized data products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, DC 20233.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, transportation, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1987 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.